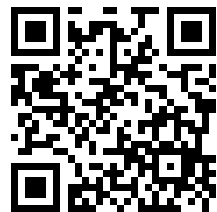
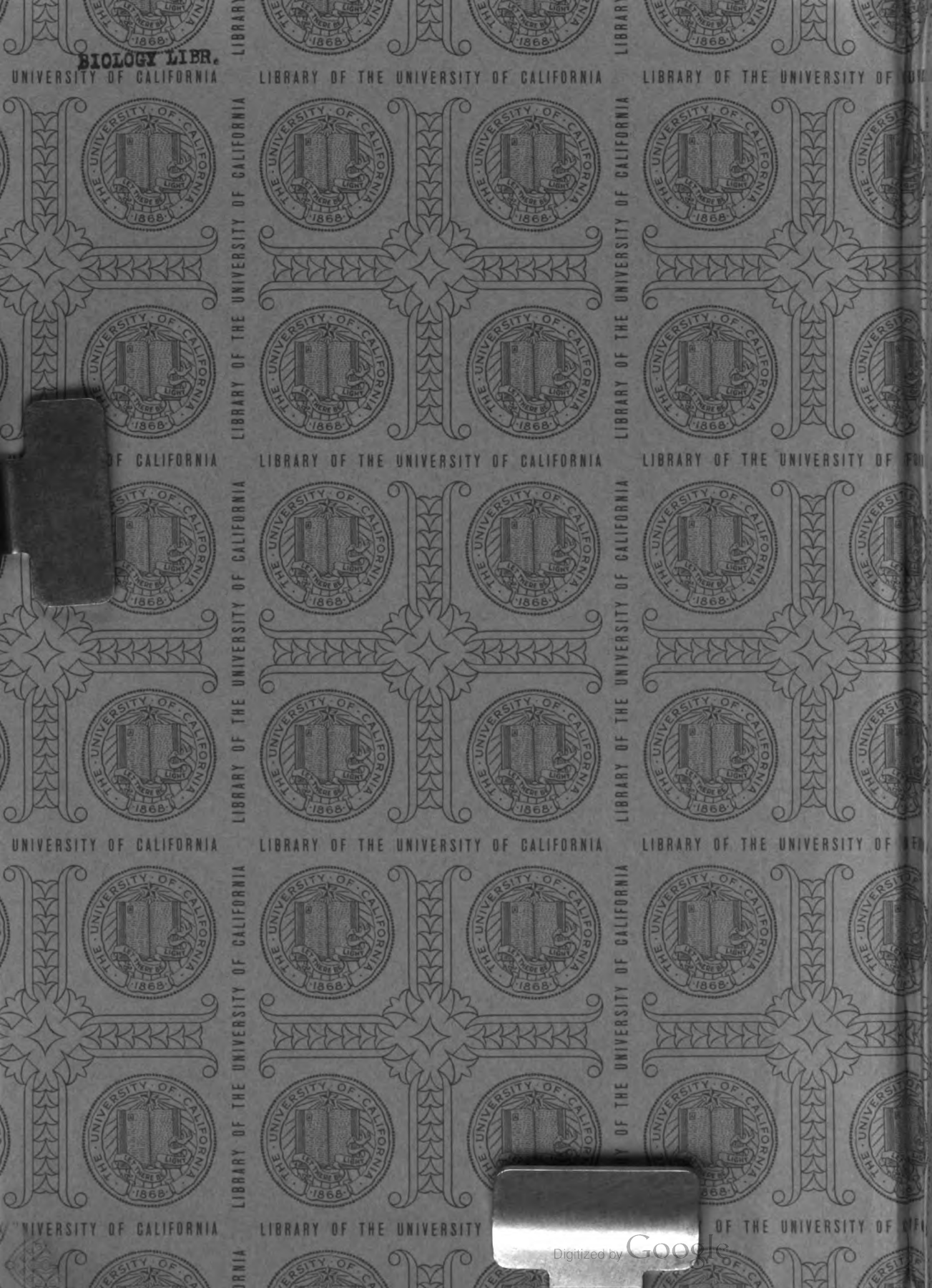

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

<https://books.google.com>





BIOLOGY LIBR.
UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

LIBRARY OF THE UNIVERSITY OF CALIFORNIA



STUB INDEX

V. 96

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		PAGE
ORIGINAL COMMUNICATIONS		HISTORICAL	
The Transport of Casualties by Air. By Lieut.-Colonel A. N. T. MENECEs, C.B.E., D.S.O., M.D., M.R.C.P., D.T.M.&H., R.A.M.C.	1	The English Military Surgeon 1603- 1641. By Colonel DAVID STEWART, Late R.A.M.C.	46
A National Service Medical Officer's Impressions of the Examination of Reservists Recalled to the Colours. By Lieutenant N. JONES, M.R.C.S., L.R.C.P., R.A.M.C.	13	Sir James McGrigor: Some Notes and Correspondence. By kind per- mission of D. G. McGRIGOR, Esq. . .	56
The Promotion and Maintenance of Mental Health in the Military Com- munity. By Major MARTIN M. LEWIS, M.B., Ch.B., D.P.H., D.T.M.&H., R.A.M.C.	17	CLINICAL AND OTHER NOTES	
Recent Advances in the Treatment of Amoebiasis. By Lieut.-Colonel W. H. HARGREAVES, O.B.E., M.R.C.P., R.A.M.C.	41	A Case of Enterogenous Cyanosis. By Lieut.-Colonel JOHN MACKAY-DICK, M.B., Ch.B., F.R.C.P. Edin., R.A.M.C.	64
AT RANDOM		Notes on A Visit to the International Congress on Amoebiasis. By Lieut.- Colonel W. H. HARGREAVES, O.B.E., M.R.C.P., R.A.M.C.	65
B.C.G.	43	BOOK REVIEW	67
		MATTERS OF INTEREST	67
		EXTRACTS FROM THE "LONDON GAZETTE"	69
		OBITUARY	70
		NOTICES	71



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

*In the
treatment of*

Bronchial Asthma

Neodrenal

Brand

ISOPRENALINE (isopropyl - nor - adrenaline)

**THE NEW, RAPID AND POTENT
BRONCHODILATOR. OFTEN EFFECTIVE
WHERE OTHER DRUGS HAVE FAILED**

Sublingual Therapy

Because of its convenience, sublingual administration is the method of choice. If taken promptly, at the onset of wheezing, an attack can usually be completely aborted.

Inhalation Therapy

In patients experiencing frequent paroxysms of severe asthma, "oral" inhalation is indicated. Seldom fails to give immediate relief from respiratory distress.

Literature and Samples on request
SAVORY & MOORE LTD.
WELBECK STREET, LONDON, W.1

Telephone :
WELbeck 5555 (20 lines)

Telegrams :
Instruments, Wesdo, London

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

R31
G7
v. 96-97

BIOLOGY
LIBRARY

Journal of the Royal Army Medical Corps

Original Communications

THE TRANSPORT OF CASUALTIES BY AIR

BY

Lieut.-Colonel A. N. T. MENECEs, C.B.E., D.S.O., M.D., M.R.C.P.,
D.T.M.&H.

Royal Army Medical Corps

Reader in Tropical Medicine, R.A.M. College

THE efficient and speedy transport of wounded, sick and injured, is a major factor affecting the mobility and morale of an Army in the field.

The history of warfare witnesses a continuous evolution in the technique of transporting casualties by human portage, by animal or animal-drawn vehicles, motor vehicles, boats, trains and hospital ships.

Prior to 1792 humanitarian motives rather than therapeutic indications regulated the speed of collection and evacuation of casualties.

Napoleon's great surgeon, the Baron Larrey, initiated research into the surgical aspects of transportation. His introduction of light, fast-moving, two-wheeled ambulances ("ambulances volantes") effected a more rapid evacuation of the wounded and sick. This, combined with his surgical skill, saved many lives, particularly after the sanguinary battles of Aboukir and Borodino.

With the conquest of the air all nations commenced building aircraft with one eye on transport and the other on their potential military value.

The recognition of the value of air transport of casualties has evolved slowly. In 1869 Jules Verne, in his novel "Robur le Conquerant," forecast the use of airships to rescue injured explorers stranded in Arctic (and other) remote areas.

During the siege of Paris in 1870 over 160 patients were evacuated over the Prussian lines by balloon.

In the British Army until 1912 all military aviation was carried out by the Royal Engineers, but in that year the Royal Flying Corps was formed, and at the Aldershot Army Exercises, Medical Officers of the R.A.M.C. drew attention to the possibility of Military patients being transported by aircraft.

1914-1918, WORLD WAR I

During the 1914-1918 War comparatively little use was made of aircraft for transporting casualties.

The French Air Force claim that in 1915 one of their pilots successfully flew a wounded Serbian airman to base during the retreat through Albania.

In 1916 the Royal Flying Corps carried out the first recorded air evacuation of a military patient from Palestine. 1918 (the year in which the Royal Air Force was formed) saw extensive operations by the French Army in Morocco; during these the French Air Force made progressive use of aircraft for transporting wounded and sick over lengthy desert communications, and provided valuable experiences in the selection criteria, and technique of flying casualties.

1918-1938

The period between the two World Wars saw the progressive development of civil aviation all over the world, particularly in the U.S.A., Canada and Australia.

In Great Britain air-ambulances were developed and used, especially between the Scottish mainland and the outlying islands.

In Spain in 1923 Cierva made the first successful flight by autogyro, with its vertical take-off and landing.

Meanwhile, from 1919 to 1937, the Royal Air Force, using both land-based aircraft and flying-boats, evacuated a total of approximately 3,000 casualties from operations in Somaliland, Iraq, Palestine and Waziristan; also from the Quetta earthquake in 1935.

In Great Britain the possible uses of air-ambulances were studied by the Joint British Red Cross and St. John's Ambulance Societies. Major-General Sir Ernest Cowell, *K.B.E.*, was active in promoting such studies and himself flew to Budapest in 1937 to the International Medical Congress at which British civilian air-ambulances were demonstrated.

1939-1941

In spite of over twenty years' Service and civilian experience of transport of casualties by air, the second World War commenced without any organized system of air transport of casualties available for use by the British Army. Nor was the provision of air-ambulances hastened: on the contrary, in nearly all theatres of operations Medical Staff Officers encountered resistance (if not blank refusal) to their repeated requests for air-ambulances.¹

¹ It is extremely interesting to note from War Diaries, Quarterly War Reports and personal experience that the provision of air-evacuation as a standard method progressed through the same stages in each main theatre of war.

At first there was actual refusal to requests for aircraft or even for transport in any available aircraft; then from the forward areas pressure was exercised by Field Ambulance Officers or R.M.O.s on friendly air pilots; then V.I.P.s and an increasing number of senior Officer or Other Rank severely wounded or acutely sick were carried by any aircraft available; then gradually all supply aircraft took sick and wounded on their return trips; until finally daily evacuation of all or nearly all casualties by empty

By contrast, in 1939, the German Army, during its invasion of Poland, was equipped with medium-sized aircraft which flew casualties directly to the vicinity of base hospitals in Germany.

WESTERN DESERT AND M.E.F., 1941-1943

In the Western Desert campaign the earliest record of air-evacuation was the flying of cases of malaria by Valencia aircraft from Siwa to Cairo in 1941. Subsequently, Australian "D.H. 86" Air-ambulances, and South African "Lodestars" evolved an improvised shuttle flight for collecting casualties from forward air-strips in the Desert.

Group-Captain O'Malley, P.M.O. of the Desert Air Force, devised a scheme for utilizing returning transport aircraft for the carriage of casualties. Aircraft used for this purpose by the Royal Air Force included "Bombays" carrying 12 lying cases and later "D.C. 3" aircraft capable of being loaded with 18 lying cases in approximately twenty minutes.

The scheme was for medium-range aircraft to carry out the first lift from the M.D.S. or forward C.C.S. to the L. of C. C.C.S. at Advanced Air Transport

supply aircraft became the standard authorized method, and special aircraft were set aside for special cases. *Pari passu* with this development Evacuation-medical-units were formed for receiving, holding the casualties and dispatching patients; the early units being detachments of Field Ambulance, later replaced by specially formed units.

To end this note here is an illuminating quotation from the Quarterly Report from the D.D.M.S. of a British Corps in North Africa when 8th Army was preparing for the Mareth Line battles.

"(F.) *Air Evacuation.*—In the light of recent experience, I make no apologies for resurrecting this red herring. My liaison with the R.A.F., and the use of the Air Evacuation Service is certainly short, but I have seen sufficient to convince me that in the Air Ambulance we have probably the finest machine for the transportation of our casualties hundreds of miles to hospitals where the wounded man can receive everything that medical science can possibly do for him, subject always to the proviso that air supremacy is with us. Between March 26 and March 31, 284 patients were evacuated by air from a forward Fd. Amb. to the nearest C.C.S., situated at MEDENINE. The ease with which the Air Ambulances landed and took off on a locally made runway showed conclusively what a future Air Evacuation holds for the Medical Services as compared with the Road. Had we a squadron of aircraft at that time in place of the odd machine, little or no evacuation by road would have been necessary, and the terrible journey through the MATMATA HILLS to the Medical Area at MEDENINE *via* HALLUF never even contemplated. I will have more to say on Air Evacuation in my next quarterly report, which will cover the operations in TUNISIA which ended on May 13, 1943.

"Our aim should be nothing less than a squadron of Ambulance Aircraft operating with each army in the field, and the whole Air Evacuation Service under D.M.S. Force. The M.A.C. has done excellent work forward, but with the air ambulance coming gradually into its own, the evacuation of casualties from forward Landing Grounds, sited near C.C.S.s and/or Fd. Ambs., must be our goal. The days of the Corps M.A.C. are numbered, except for local 'taxi-duties' and this might be circumvented by C.C.S.s having a few ambulances on their establishment and increasing the number of ambulances with Fd. Ambs."—En.

Centre; thence other Transport Aircraft flew cases back to the C.C.S. group, Advanced Base Hospitals, or Base.

During the successive advances of Field Marshals Wavell, Auchinleck and Montgomery, an appropriate total of 50,000 patients was flown by air. The Allied advances in Italy were also served by air transport of casualties, both in Italy itself and from Italy to North Africa.

OPERATIONS IN NORTH-WEST EUROPE, 1944-1945

During the period June 6, 1944, until May 8, 1945, covering the landings and operations in France and the Low Countries, the break-through and pursuit, the crossing of the Rhine and the invasion of Germany, a total of 118,000 casualties were transported by air, 40,000 within the theatre itself and 78,000 from the theatre to the United Kingdom.

During the initial assault, air evacuation commenced on D+6 from an airfield near Bayeux; the journey by air to the U.K. took two hours as opposed to the sixteen hours' land and sea journey. Subsequently, during the phase of the build-up, returning Dakota aircraft were evacuating up to 800 casualties daily.

The break-through and pursuit resulted in the capture of airfields at Amiens and St. Omer and from these a flight of "Sparrow" aircraft ferried casualties back to the Bayeux group of hospitals.

During this phase, two important lessons were learnt:

- (a) The necessity for providing suitable medical units (say a 200-bedded hospital or C.C.S.) in the vicinity of airfields where casualties are emplaned or deplaned. Such units should be capable of providing full pre-flight treatment and nursing.
- (b) The advisability of having casualties readily available to take advantage of empty transport planes returning to base.

The capture of Brussels with its airfield greatly facilitated the air transport of casualties, and daily from 700 to 900 patients were flown direct to the United Kingdom.

Early in 1945 flying was repeatedly interrupted by bad weather; on one occasion for seven consecutive days. This demonstrates the vital necessity of having adequate land transport available for casualties at all times.

After the crossing of the Rhine the journey of a casualty down the 200 miles of L. of C., which took approximately ten hours by train, was completed by air in one hour and twenty minutes.

The subsequent seizure of airfields at Luneburg and Celle enabled the air transport to the Brussels group of hospitals of up to 900 patients daily. The provision of medical holding units of from 200 to 600 beds in the vicinity of airfields enabled full use to be made of empty returning transport aircraft.

During this campaign the Royal Air Force developed "Casualty Air Evacuation Squadrons," medical units capable of receiving, holding and emplaning patients from airfields.

[illegible]

The Arakan force included one West African Division which had no lines of communication, but was on complete air supply maintained by Troop

Carrying Command under General Old of the U.S. Air Force. From October 1943 until June 1944 all wounded and sick from this Division were flown from Field Ambulance areas inside Brigade perimeters direct to West African General Hospitals; and the full advantages (and limitations) of air transport of casualties were demonstrated.

The successive Battles of Sinzweya (when the Japanese encircled the 7th Division for three weeks) and of Kohima and Imphal (when the Japanese attempted to invade Assam), showed that the organization of air supply and air evacuation of casualties was the only method by which Allied forces could advance through the jungles of Assam and Burma and defeat the Japanese forces.

The transport of wounded by air usually took place in two echelons. A forward echelon of light planes (chiefly American Piper Cubs or Ls.4 and 5) organized a shuttle service between forward strips in Divisional areas and advanced airfields in the vicinity of Corps Medical Centres.

Thence, "Dakota," plus a few "Commando," medium-sized aircraft flew casualties back to Base Hospital areas.

The reduction in pain, discomfort, time and loss of life can be appreciated by comparing the plight of a casualty in 1942 whose journey from the front in Arakan to a Base Hospital involved up to sixteen changes of transport lasting up to seven days. In 1944 and 1945 the same journey by air involved only three changes and took up to three hours.

The subsequent advances in the autumn of 1944 and the spring of 1945 in Northern and Central Burma coupled with the series of amphibious assault landings on the Arakan coast led to unprecedented development of air-supply and air-evacuation of casualties.

During the Burma campaign the gross total weight of supplies and equipment (including medical) flown by air was over 1,180,000 tons. The approximate total number of casualties evacuated by air during this period was 180,000.

It is impossible to pay sufficiently high tribute to the pilots and air-crews of the Royal Air Force and United States Air Force who flew repeated sorties over the vast areas of jungle, often through a nightmare of cloud-bank in hilly and mountainous country searching for improvised air-strips, the latter liable to be swept away by monsoon torrents.

Pilots flying light aircraft in the forward echelons would make six to eight sorties each day, sometimes under direct Japanese mortar and small-arms fire.

In Burma by 1945 the technique of air transport of casualties had successfully emerged from the most gruelling and exacting operational tests.

LIMITATIONS OF AIR-TRANSPORT OF CASUALTIES

Apart from clinical contra-indications (such as patients suffering from severe hæmorrhage, shock, or myocardial ischæmia), the principal factors which may limit the transport of casualties by air include:

(a) *Availability of suitable aircraft and crews.*

Now that it has been agreed that the Army will operate light aircraft in the very forward areas for casualty evacuation; i.e. in advance of the forward terminals of the R.A.F. services (usually between A.D.S. and C.C.S.), the supply of light aircraft and helicopter sorties may be easier. The Commander of the Army Formation concerned will be responsible for allotting adequate sorties for transporting casualties.

The provision of adequate medium and heavy aircraft sorties by the Royal Air Force will always be difficult owing to prior claims of fighter, bomber and other operational requirements.

(b) *Availability of suitable air-strips and airfields.*

Under satisfactory weather conditions, forward formation medical units can easily improvise air-strips for use by helicopters or light aircraft.

Airfields suitable for use by medium and heavy aircraft demand skilled engineering effort and must conform to the Royal Air Force lay-out for the particular theatre of operations. Hence to ensure the optimum use of empty returning aircraft, Corps, L. of C., and Base Medical Units may have to be sited within easy reach of such R.A.F. airfields. Such sites may not always be the ideal location for a hospital, but on balance will be the most efficient.¹

(c) *Air superiority.*

Pending international recognition of the protection of ambulance aircraft under the Geneva Convention, an essential pre-requisite of systematic flying of casualties will be the attainment of air parity or air superiority: transport aircraft, being relatively slow, and unarmed, are vulnerable to enemy attack.

(d) *Weather.*

In spite of radar aids to navigation, bad weather may seriously restrict the flying of casualties. Fog, mist, low cloud-base, monsoon-rains, or snow, may all interfere with flying.

This emphasizes the necessity of maintaining at all times a dual organization capable of transporting casualties by either land or air. The latter means should always be regarded as a bonus.

(e) *Intercommunication.*

To prevent patients making unnecessary journeys to the air-strip, or alternatively aircraft being grounded for longer than is necessary owing to delay in arrival of patients for emplaning, efficient means of intercommunication between medical units and the C.A.E.S. or other emplaning unit are essential; also ground-to-air radio-telephony, between the airfield and transport aircraft. Poor intercommunication may cause serious delay to the speed of evacuation of urgent cases.

¹ On the Burma front it was found that, owing to the uncertainties of the weather with flooding or damage to landing grounds, it was necessary to have two sets of Advance-base, or Base hospitals for reception of casualties and radio and telephonic communication to ensure prior information of arrival.—Ed.

CLINICAL FEATURES LIMITING AIR-TRANSPORT OF CASUALTIES

Nearly all patients fit to be transported by surface vehicles can safely travel by air, but the latter may be associated with decrease in air temperatures, oxygen lack (hypoxia), lowered atmospheric pressure causing decompression, and finally the effects of gravity, including severe "bumping" such as when flying through rapidly rising streams of air. Clinical experience and physiological conditions which include reduction in either the vital capacity, or the total amount, of circulating hæmoglobin (the two conditions may co-exist) requires special consideration and treatment before emplaning, as well as during the flight (e.g. transfusions and oxygen).

The effects of decompression at high altitudes may lead to alterations in intrathoracic and intra-abdominal tensions. Gunshot wounds or trauma of either of these cavities may be aggravated by such decompression.

On the other hand, operational experience has shown that certain types of war wounds such as perforating wounds of the eye should be given high priority of transport by air.

Lesions recommended for priority air transport.

- (1) Perforating wounds of the globe of the eye.
- (2) Maxillofacial wounds.
- (3) Burns (especially of the hands or face): these patients will require preliminary treatment for shock.
- (4) Wounds of limbs and joints, which have received efficient immobilization.
- (5) Cranial wounds.
- (6) Severe flesh wounds.
- (7) Pelvic and spinal injuries.

Lesions which require special consideration and treatment before emplanement.

- (1) Hæmorrhage, and shock, or any other cause of reduction in oxygen-carrying hæmoglobin which may be intensified by hypoxia (anæmia, myocardial ischæmia).
- (2) Thoracic or abdominal wounds, or gastro-intestinal lesions, which may be worsened by effects of decompression.
- (3) Respiratory lesions involving reduction in the vital capacity, such as pneumothorax.
- (4) Maxillofacial injuries.
- (5) Infectious diseases, such as smallpox.
- (6) Mental diseases (non-quieting suicidal or homicidal patients).

Before being transported to airfields for evacuation, the selected patients should receive the appropriate medical or surgical treatment to prepare them for flight. Full clinical data including such treatment should be entered on the documents accompanying such patients.

THE POSSIBLE CONVEYANCE OF DISEASE BY AIRCRAFT

Apart from the transport of human individuals either incubating, or carrying infectious or communicable diseases, mosquitoes (or other insects) which transmit diseases such as yellow fever, call for preventive spraying of aircraft.

THE AIRCRAFT

The different types of (land-based) aircraft used for transporting casualties are divided into three echelons, based on the following considerations.

(a) *Light aircraft, or Helicopters.*

These are capable of transporting 1 to 4 patients per sortie, a distance of up to 100 miles, at a speed of about 87 knots. Landing strip requirements are up to 700 feet open space on grass, hard sand, or on a road.

Types at present available include the American L-5, and the British Auster-Avis; also the Bristol 171, and Hover Fly II helicopters.

Light aircraft, or helicopters, are intended for use between advanced air-strips within Divisional areas (say at A.D.S. level), and the vicinity of the Corps Medical Centres. They will be operated entirely by the Army with Army Officers as pilots.

(b) *Medium-range aircraft.*

These are capable of transporting from 4 to 24 patients a distance of up to 900 miles, at a speed of about 150 knots. Take-off and landing runs require pavement, matting, good grass, or hard sand of up to 830 yards. Types at present available include the "Valetta," "Dakota" and "Anson."

These aircraft are operated and piloted by the Royal Air Force.

(c) *Long-range, multi-engined aircraft.*

These can carry a total of up to 32 lying, plus 28 sitting patients per sortie, a distance of up to 1,880 miles, at a speed of 180 knots. Take-off and landing runs should be pavement of at least 1,450 yards length. The present British type of such aircraft is the "Hastings." They are operated and piloted by the Royal Air Force.

OPERATIONAL CONTROL OF AIR-TRANSPORT OF CASUALTIES

- (a) In Divisional areas, the transport of casualties between advanced air-strips (near an advanced dressing station) and advanced air-transport air-strips (located in Corps areas) may be effected either by helicopter or light aircraft. Each day Divisional headquarters notify Corps H.Q. their requirements for helicopter or light aircraft sorties. Corps H.Q. decide the relative urgency of requests from different Divisions, and allot sorties accordingly.

Helicopters and light aircraft flying forward to advanced air-strips should always carry stretchers and blankets to replace those used in evacuating casualties.

To avoid delay in emplanement of patients it is essential that telephonic or other rapid means of communication should be established between the advanced dressing station and the advanced air-strip.

- (b) Between advanced air-transport airfields and main (or base) transport airfields, the provision and control of aircraft sorties is a Royal Air Force responsibility and is best effected by the Army authorities notifying the R.A.F. daily the estimated number of patients requiring transport by air from Corps medical centres (located near advanced air-transport air-strips), to General Hospitals within easy reach of main or Base Hospitals.

The retention and care of casualties at these airfields, and the emplaning, care during flight, and deplaning, is performed by R.A.F. Casualty Air Evacuation Squadrons. These C.A.E.S. have an establishment of approximately 327 personnel of all ranks, including medical and nursing officers, nursing orderlies, clerks, cooks and other administrative personnel.

The squadron is divisible into three flights, Headquarters, "A" and "B," and each squadron can receive and emplane or deplane up to 500 casualties per day, and can retain and accommodate up to 100 patients at any time.

The Headquarters flight is usually located at main transport airfield in the theatre of operations: "A" and "B" flights are located on advanced air-transport air-strips.

If required, two light sections can be detached from each of "A" and "B" flights and be flown forward to work on forward air-strips.

DOCUMENTATION

All casualties transported by air should be accompanied by the same medical documents as on land. These include the Field Medical Card A.F.W. 3118. Sulphonamide or Anti-biotic labels, and also A.F.W. 3083 (Casualty Evacuation Label).

Any treatment given at a C.A.E.S. or during flight should be noted on the relevant documents.

If kit or other effects accompany patients, the appropriate labels should be affixed. (A.F.W. 3300 for Officers and A.F.W. 3042 for Other Ranks.)

PROTECTION OF AMBULANCE AIRCRAFT UNDER THE GENEVA CONVENTION

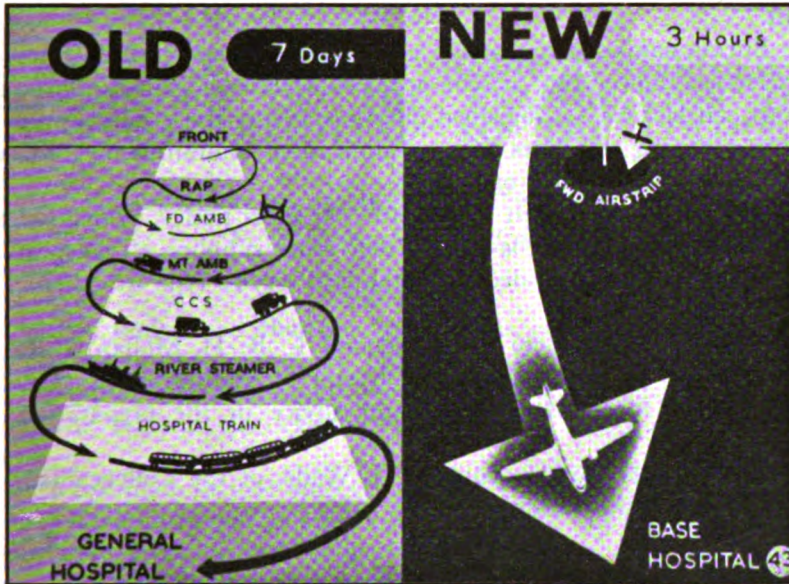
International agreement has not yet been reached concerning the protection of ambulance aircraft under the Geneva Convention.

Helicopters and light aircraft operating in forward areas cannot reasonably expect such protection, as the pilots during flight inevitably observe enemy concentrations and dispositions.

But for medium and long-range aircraft used *exclusively* for transporting casualties and for flying over routes (notified to the enemy), say from Corps

Medical Centres to Base Hospital areas, protection under the Red Cross might reasonably be claimed.

Such aircraft would require appropriate markings.



DEVELOPMENTS IN AIR-TRANSPORT OF CASUALTIES SINCE 1945

The experience gained by the Allies between 1939 and 1945, when over 500,000 were transported by air, have been the subject of critical reflection and planning for future policy.

At the International Military Medical Congress held at Mexico in October 1949, the British Delegation headed by the Director-General of the Army Medical Services (Lieut.-General Sir Neil Cantlie) reviewed such past experiences and made constructive suggestions for future planning.

Technical developments of jet-propulsion, refuelling whilst in flight, as well as new designs of aircraft such as the De Havilland "Comet" and the Bristol "Brabazon" enlarge the scope of possible air-transport of casualties.

At the present time the Royal Air Force is continuing to transport limited numbers of patients by helicopter and light aircraft in Malaya and Korea; and by medium and long-range aircraft from overseas theatres to the United Kingdom.

The United States Air Force has evolved a scheme by which hospital ships have been eliminated and all casualties from Europe, Alaska, the Caribbean and Far Eastern theatres are flown direct to hospitals in the U.S.A. Within the United States the M.A.T.S. (Military Air Transport Service) provides a

twice-weekly service by which patients can be flown to any Service hospital from Boston to San Francisco.

The Allied experiences from 1939 to 1945, as well as during the Berlin airlift, and the operations in Malaya and Korea have shown that the use of Air Forces solely for offensive fighting, bombing and tactical support, is not sufficient.

The Burma campaign (in which an average transport aircraft replaced at least six lorries) showed that as soon as air superiority is gained a large number of aircraft can be used for logistical purposes, giving the ground forces greater flexibility, reducing the lines of communication commitments and enabling them to outmanœuvre their opponents.

The Medical Services must be prepared, at short notice, to make the fullest use of aircraft returning to base after delivering supplies. Transport aircraft must be capable of being loaded with standard service type stretchers.

The writer is indebted to Major-General F. R. H. Mollan, *C.B., O.B.E., M.C., K.H.S.*, the Commandant and Director of Studies of the Royal Army Medical College, for encouragement and advice in the preparation of this paper.

Also to Mr. J. H. Grundy and Sjt. J. Wade, of the College Staff, for the preparation of the illustrations.

A NATIONAL SERVICE MEDICAL OFFICER'S IMPRESSIONS OF THE EXAMINATION OF RESERVISTS RECALLED TO THE COLOURS

BY

Lieutenant N. JONES, M.R.C.S., L.R.C.P.

Royal Army Medical Corps

INTRODUCTION

It must be understood that the impressions gained are limited and the views expressed in this report are only personal. They are necessarily so, because the report is based on only one intake of approximately one hundred men, and the facilities for examination were influenced by existing local conditions.

We were fortunate in that both the A.D.M.S. and the unit concerned, gave us complete freedom to plan our work as we wished. We specified our requirements and were given everything we wanted.

It was essential that our own work dovetailed closely into the rest of the programme, and that there would be no hold up in one department due to stagnation in another.

Three communicating rooms were given us and a plan of this system is appended (fig. 1).

EXAMINATION OF RESERVISTS

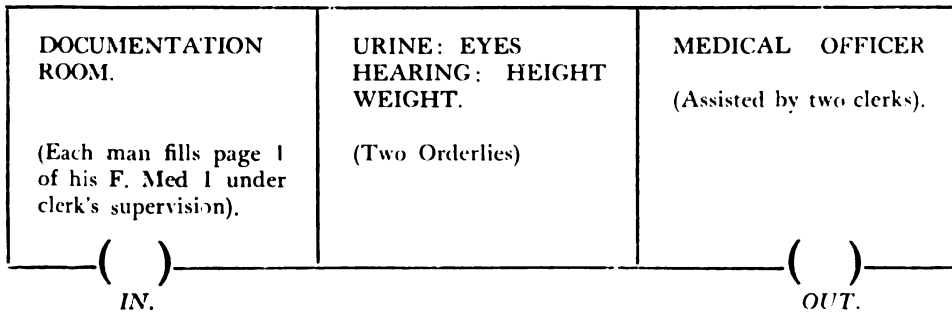


FIG. 1

It was essential that the closest collaboration existed between ourselves and the other unit officers. A means had to be found whereby a liaison officer with no medical knowledge could assess whether a man was to be retained by us or not. If the man was below the standard of fitness required then the time

14 M.O.'s Impressions of Examination of Reservists Recalled to Colours

and man-power would be wasted if a reservist was issued with kit. Army papers, and so forth, only to be relegated back to the reserves half an hour later. This difficulty was easily overcome by allowing his medical examination to take place first and by issuing each reservist with a medical certificate, which we designed, immediately we had finished with him. This certificate was then taken by the man to the liaison officer, who directed his subsequent disposal.

A specimen of this pro forma is shown in fig. 2.

MEDICAL CERTIFICATE

NAME.....

No.....

Rank.....

*PES.....

This is to certify that I have examined the a n. His PULHEEMS employment standard is as shown above.

†Medical examination is now:

1. COMPLETED.....

2. NOT COMPLETED.....

If examination is not completed state whether this is due to:

(a) Further investigation required.

(b) Case requires review in.....

Signed.....

R.A.M.C.

Medical Officer

UNIT STAMP and DATE

*If PES=O, it must be understood that this is temporary ONLY.

†Mark appropriate box with a tick.

FIG. 2

GENERAL OBSERVATIONS

The entire intake, bar one man, had been relegated to the reserve, four years previously, in category A1. The general impression gained was that there had been a marked deterioration in their overall physique, it being implied that their earlier release category denominated a standard of fitness equivalent to FE troops, serving with the colours today.

This deterioration was apart from any absolute disabilities that had appeared during their sojourn in civilian life, and which will be described later in more detail.

One must assume that Service conditions play a decisive role in bringing out and improving latent physical development in most men.

EXAMINATION OF RESERVISTS

A return to active training conditions will undoubtedly re-equip these men with a greater capacity of physical endurance than can be expected of them at present.

The standard of general hygiene was very good, an improvement upon that seen in normal National Service intakes which we see each fortnight, and was far better than that seen in a recent draft of serving soldiers from another theatre, which was staged through us. In the latter, the standard of the men's feet was so appalling that it necessitated a severe censure of the men and their re-education regarding the care of the feet.

It is hoped that the good standard of cleanliness shown by these Reservists from civilian life, and which has become a habit with them, will be maintained by them during their recall to Service conditions, and will serve as a good example to some of the younger soldiers. Their mental outlook on being recalled to the colours will also play an important part, since many of them are going to lose their civilian occupations. This seemed to be their greatest problem. However, they are also aware of their Service liabilities, and one felt that provided they are employed on tasks or training which impresses them that their services are required and essential, and they are not kept unoccupied for any marked period of time, then they will be content. They feel they have been called back to do a job and they want to get on with it.

THE UNFIT GROUP

Some 20 per cent of those examined could not be classified as FE, and fell into one or other of the following groups:

(1) *Psychiatric*.—This group constituted 6 per cent of the total examined and included the man who had been relegated previously as B1. These cases were eventually diagnosed by a psychiatrist as anxiety neurosis. Their symptoms varied from those who stated that they could not face any combatant duties again, to one who claimed he was oversexed.

(2) *Gastric Disorders*.—5 per cent claimed disability due to gastric disorders either duodenal or peptic ulceration. My impression was that some of the histories were false, nevertheless a complete investigation, including a barium meal, was undertaken in each case.

(3) *Surgical Cases*.—Only 2 of the total intake could be classified under this heading. Both were cases of herniæ; one inguinal and one femoral. The inguinal herniæ was the third recurrence after previous operations.

(4) Referred for further investigations were 7 who did not readily fall into any of the above groups.

(a) T.B. history, in two men. One of these showed X-ray evidence of an active pulmonary lesion. He was admitted to hospital.

(b) Chest X-ray for pneumoconiosis in a miner, which later proved negative.

(c) One case of albuminuria, confirmed by a complete pathological investigation; one case of glycosuria.

(d) One case of V.D.

CONCLUSION

A deferment of approximately 20 per cent must be regarded as high; in most cases had the individual reported his illness or condition early on to the military authorities then he would have been found unfit by a Medical Board and discharged from his obligations.

The examination of these men differs from that normally undertaken for National Service recruits, in that the former constitute a much older age-group, who have had no recent pre-military examination.

It was also noticed that the help given us by the unit during this minor emergency was directly proportional to the help we had given them in the past, under normal working conditions. We were given an excellent clerical staff, and anyone who has worked with a unit knows what that means. We were given priority of choice in everything, and that played no small part in the efficiency of the organization.

To National Service Medical Officers in particular, a word of warning. If you should be called upon to examine any of these reservists, find out EXACTLY what is expected of you; make sure you have everything you need well before the appointed day, and discuss these needs with your unit. You will not be the only one working to an urgent time-table, and you will be expected to give a precise answer to most questions. "Perhaps," "Maybe," or "I don't know," will not be accepted. It will have to be YES or NO.

If you want your task to be simple, find out individually what is going to happen and don't expect to be told everything. The old hands, both medical and non-medical, have been at this game much longer than any of us, and they usually know the answers. Seek them out and enlist their aid. They are there to help you as much as they can.

THE PROMOTION AND MAINTENANCE OF MENTAL HEALTH IN THE MILITARY COMMUNITY

BY

Major MARTIN M. LEWIS, M.B., Ch.B., D.P.H., D.T.M.&H.

Royal Army Medical Corps

(Specialist in Army Health)

Department of Army Health, Royal Army Medical College

PART I

INTRODUCTION

THE sphere of hygiene has expanded greatly in the last hundred years. This expansion has kept pace with the growing realization that every facet of our environment and daily life has its health aspect.

Thus the hygienist has found himself working in an ever-widening field. His work with regard to practical sanitation involved him in a study of engineering and chemistry.

The discoveries of Pasteur revolutionized his ideas on epidemic control so that, for a time, his speciality became dominated by the science of bacteriology.

His appreciation of the importance of the physical environment led him to a study of applied physiology and physics, and he added the Haldane Apparatus, katathermometer, photometer and radiation detector to his armamentarium of technical weapons.

During recent years the importance of what we describe as "social medicine" has become more widely appreciated; not that there is anything new in the study and practice of social medicine, but its domination of the sphere of hygiene is a comparatively recent occurrence.

It was the study of social medicine which led the hygienist into the field of mental health. In his investigations regarding man's social environment he noted many factors which affected mental health, and he soon realized that he could do much to promote mental as well as physical well-being.

Today, mental ill-health is one of the main causes of inefficiency, human suffering and man-power wastage; evidence of this confronts us in every issue of the Daily Press, such as crimes of violence, juvenile delinquency, the incidence of divorce and the wider aspects of bad international relationships with wars and rumours of wars.

Perusal of the Statistical Report on the Health of the Army, 1943-45,

18 *Promotion and Maintenance of Mental Health in Military Community*

reveals the importance of mental hygiene in a striking manner; we read that "... psychiatric disorders are by far the largest cause of medical discharge among military personnel (Other Ranks). In 1943 they made up over one-third of all discharges with relation to disease, and in 1944 their contribution rose to two-fifths."

In the immediate post-war period the percentage of discharges on psychiatric grounds has remained approximately of the same order, as is shown by these tables:

TABLE I.—MEDICAL DISCHARGES ON PSYCHIATRIC GROUNDS, BRITISH ARMY,
OTHER RANKS, 1943-48

As Percentage of all Medical Discharges due to Disease

<i>Psychiatric disorders</i>	1943	1944	1945	1946	1947	1948
Anxiety neurosis	13·6	18·4	22·0	16·3	13·7	12·66
Hysteria	7·2	8·2	6·4	6·3	10·1	11·93
Psychopathic personality	6·0	6·5	4·7	6·0	7·5	8·98
Mental deficiency	2·4	2·6	1·9	2·9	6·8	6·05
Schizophrenia	2·3	2·6	1·8	3·3	3·8	2·70
Manic-depressive psychosis	2·2	1·4	0·9	1·2	1·1	0·65
All others	1·2	0·7	0·8	0·9	0·6	0·24
All psychiatric disorders	34·9	40·4	38·5	36·9	43·6	43·21

TABLE II.—MEDICAL DISCHARGES ON PSYCHIATRIC GROUNDS, BRITISH ARMY,
OTHER RANKS, 1943-48

Annual Rates per 1,000 Strength

<i>Psychiatric disorders</i>	1943	1944	1945	1946	1947	1948
Anxiety neurosis	2·57	3·80	5·71	3·89	2·65	2·78
Hysteria	1·36	1·69	1·66	1·51	1·95	2·62
Psychopathic personality	1·13	1·35	1·23	1·44	1·44	1·97
Mental Deficiency	0·46	0·54	0·48	0·69	1·31	1·33
Schizophrenia	0·43	0·54	0·47	0·79	0·73	0·59
Manic-depressive psychosis	0·42	0·29	0·22	0·28	0·21	0·14
All others	0·22	0·15	0·21	0·21	0·11	0·05
All psychiatric disorders	6·59	8·36	9·98	8·81	8·40	9·48

These facts and figures indicate that the problem of promoting the mental health of the military community is a very real one, and that important opportunities of reducing man-power wastage exist in this branch of hygiene.

I have written this paper from the point of view of the Specialist in Army Health, who now has a definite and official responsibility for the promotion and maintenance of mental, as well as physical, health.

I have endeavoured to collect together and discuss all those basic facts which have a bearing on mental health, and have summarized the principles involved in promoting and maintaining it.

This paper is arranged in sections as follows:

<i>Section No.</i>	<i>Title</i>
I	Concepts of Health in General.
II	Concepts of Mental Health in Particular.
III	Factors Which Influence Mental Health.
IV	Personnel Selection.
V	The Employment of Individuals who are Potential Misfits.
VI	The Role of Medical Officers, Administrators, Commanders and Leaders in the Promotion and Maintenance of Mental Health.
VII	The Mental Health of the Soldier's Family.
VIII	The Mental Health of the Military Community During Wartime.
IX	The Mental Health of the Military Community During Times of Peace.
X	Summary. References.

SECTION I.—CONCEPTS OF HEALTH IN GENERAL

In recent years the term "positive health" has come into prominence, and, by frequency of use, has become a hygienist's catchword, almost a household word.

The advent of this term signified a changing outlook in the sphere of medicine; those who first used it suggested that we were too preoccupied with the study of disease and its prevention and treatment, and that it was time we paid more attention to the quality of health and its enhancement.

The term "positive health" is not easy to define. Some have defined it as a particular state of body and mind, a state of physical and mental perfection combined with a sense of positive well-being; a state of perfect attunement to the environment. But I suggest that the best term for such a state of perfection is "optimum health," and that the use of the word "positive" in this connexion is incorrect. Others do not talk of positive health as such but advocate a "positive attitude" towards health; this is a useful concept in that it lays emphasis upon those factors which increase physical and mental efficiency in addition to those important in the prevention of disease.

I suggest that the term "positive health" should be used to describe a phase rather than an exact state.

It is difficult, perhaps impossible, to define an exact boundary between the states of health and disease; and attempts to do so raise many controversial points. At once one meets difficulties in trying to decide what constitutes disease. For example, do normal senile changes constitute disease? They certainly interfere with physical and mental function; but they are considered part of the physiological process of ageing. One cannot put health in one "watertight" compartment and disease in another, as the two states overlap.

As Kennedy points out: "Disease and health are paired concepts; they are inseparable in thought, for it is impossible to think of one without thinking of the other" (Kennedy, 1947).

I suggest that health should be considered a quality which is possessed in some degree by every individual, and that an individual may be healthy in some respects but not in others. If we accept this premise, we must con-

sider that even an individual who is totally incapacitated by disease has a certain amount of health.

At first sight this may seem absurd; yet, even in a most advanced state of disease, as long as life is present some organ or system continues to function in a healthy way.

But, without a minimum degree of health life is impossible, and an individual who is diseased can be said to have progressed into the **negative** phase of health. When disease has been eradicated the influence of beneficial environmental factors can cause the individual to progress in the positive phase of health.

Whenever height, weight, intelligence or almost any other physical or mental characteristic is measured the scores, if obtained in respect of a large random sample, will be found to be distributed approximately according to the curve of normal distribution.

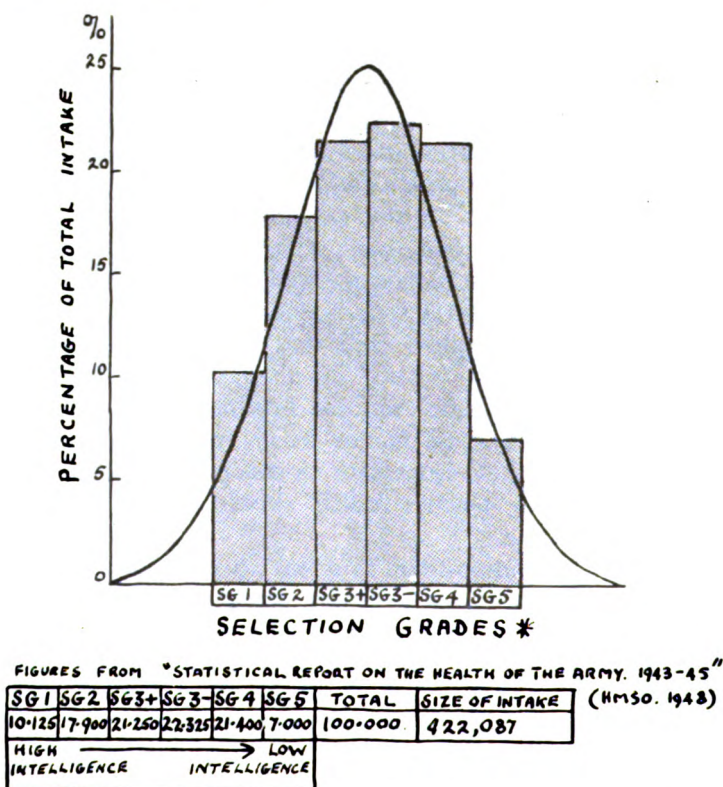


FIG. 1.—Histogram showing distribution of selection grades* as percentages of total intake into the British Army, 1943 and 1944. A normal curve is superimposed.

*Selection Grades—These are based on scores obtained on intelligence tests to which troops are subjected.

The greater the influence of biological inheritance on the formation of the characteristic being measured the more closely do the scores approximate to the curve of normal distribution.

It is reasonable to suppose that the quality of health, if it could be measured, would be found to be distributed in the human race in a similar way.

Admittedly the sample would have to be very large in order to eliminate bias caused by particular social or environmental circumstances. Near one end-point of the curve would be found a minority possessing the optimum amount of health; near the other end-point would be found another minority possessing the minimum amount of health compatible with life; while in the centre would be a large average group, some individuals early in the positive phase, others early in the negative phase, and all having an admixture of health and disease (fig. 2).

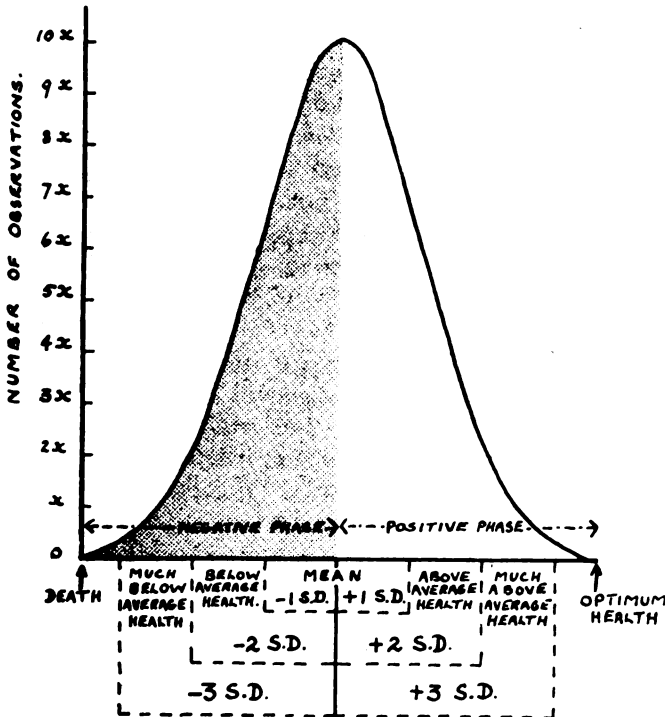


FIG. 2.—Curve showing the hypothetical distribution of the quality of health in the universe. (S.D.=Standard Deviation)

Kennedy suggests this concept and says, "... thus it is in perfectly ordinary scientific usage to speak of an individual varying positively or negatively from the mean of a group in respect of any measurement" (Kennedy, 1947).

22 Promotion and Maintenance of Mental Health in Military Community

The distance to which an individual can progress in the positive phase of health ultimately depends upon his constitution.

A minority possess a constitution so impaired, by factors which may be either inborn or acquired, that they remain permanently in the negative phase of health however beneficial the environment may be. But it is to be assumed that, given favourable circumstances, the majority of individuals are capable of entering the positive phase.

In practising hygiene we should attempt so to enhance the quality of health in the community that every individual progresses so far towards optimum health as his constitution will allow.

We may find ourselves working in a community which, on account of a bad environment, possesses a degree of health which is below average; the distribution curve for health in such a community would be as illustrated in fig. 3.

Our aim in such circumstances is so to improve the constitution and environment of the community that the distribution curve for health assumes the form illustrated in fig. 4.

Health has two basic components, mental and physical.

This paper is concerned with the mental component.

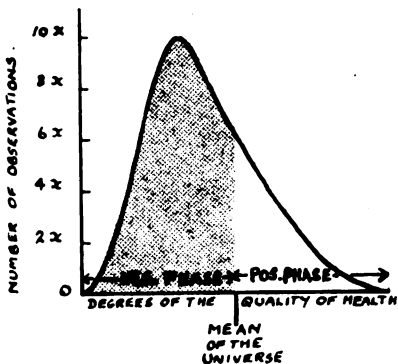


FIG. 3.—Curve showing the hypothetical distribution of the quality of health in a community having bad environment.

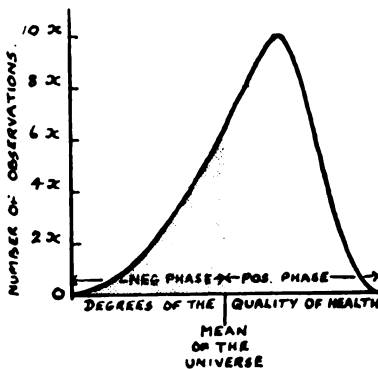


FIG. 4.—Curve showing the hypothetical distribution of the quality of health in a community having a good environment.

SECTION II.—CONCEPTS OF MENTAL HEALTH IN PARTICULAR

There are five components of mental health, viz.:

(1) The ability to discharge mental tension with ease, comfort and in a normal way.

If mental tension cannot be discharged with ease, then the individual will be burdened with periods of accumulated tension which will disturb emotional stability and impair mental efficiency.

Inability to discharge mental tension with comfort renders the individual conscious of that tension which results in a state of worry.

The discharge of tension in abnormal ways produces behaviour disturbances which range from the more serious disorders of affect-conation, displayed by those suffering from the various psychoneuroses, to minor affective outbursts; the latter are common enough, such as kicking the cat or breaking one's golf clubs, and may be considered "normal."

(2) The efficient functioning of the mental process of cognition and memory.

(3) Intelligence.

(4) Morale: Morale is a state of mind which does not lend itself to easy definition. Rees states: "The word morale is somewhat indefinable, although to most of us it conveys the same concept" (Rees, 1945).

The criteria of good morale are self-confidence, self-respect, determination and identification with the group and its aims.

(5) Moral capacity: This depends upon the ability to distinguish between good and evil and requires the development and proper functioning of a conscience.

Our aim in the practice of mental hygiene is to assist every individual to progress as far as possible into the positive phase of mental health as his constitution will allow. This involves the eradication of the causes of mental ill-health as far as is possible and, by improvement of environment, the enhancement of mental function to the maximum potential of every individual.

The term "mental function" is used here in its very broadest sense; it concerns not only the mental activities of affect, conation, cognition and memory, but also conscience, moral and social sense, morale and those processes which produce in consciousness a sense of well-being.

In discussing general health I have stressed the fact that one cannot define an exact borderline between health and disease, and that these states overlap.

This consideration is especially true of mental health and mental disease: one cannot classify the human race according to two groups, the sane and the insane.

I have already suggested that the quality of health exists in mankind according to a normal curve of distribution.

"We know that intelligence is so distributed; the same distribution is stated to hold good for emotional stability also" (Carroll, 1947).

Thus we can consider that the distribution of the quality of mental health in mankind is as illustrated in fig. 5. Near one end-point of the curve would

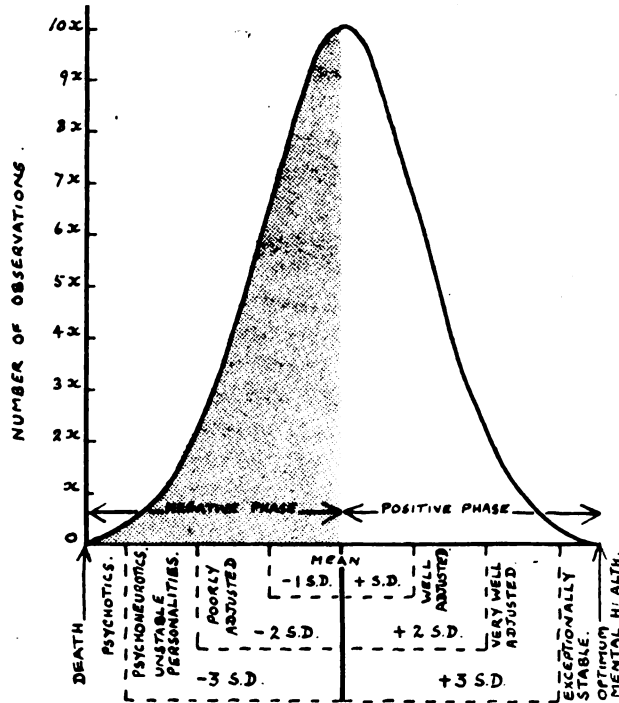


FIG. 5.—Curve showing the hypothetical distribution of the mental health in the universe. (S.D.=Standard Deviation).

be found a minority who are in a state of optimum mental health; individuals who are emotionally stable, whose mental processes function perfectly, who are of high intelligence and morale and who possess a well-developed moral and social sense.

Next come those who are above average with regard to the various components of mental health. In the centre of the curve is found the majority which forms a large average group, some in the positive phase of mental health, others in the negative phase. Below the average group come those who are emotionally unstable, and those in respect of whom one or other of the various components of mental health is present to a degree less than normal.

Below this group, and near the adjacent end-point, come the overt psychoneurotics and psychotics

In relation to emotional stability this concept is described by Carroll who says: "The point of view taken . . . is that a neurosis or functional psychosis is merely an exaggeration of tendencies or adjustment mechanisms which are common to all" (Carroll, 1947).

As Klein says: "there is a genuine possibility of successfully contending that the facts of mental health belong in one category and those of mental

disease in another, and that the quantitative graduations of the normal curve apply to each of these categories separately. This contention presupposes a dichotomy between health and pathology, and argues for a bimodal distribution if the extremes of the dichotomy were made the end points of a curve" (Klein, 1944).

SECTION III.—FACTORS WHICH INFLUENCE MENTAL HEALTH

Constitutional Factors

The ability of an individual to progress towards the goal of optimum mental health is conditioned by his mental constitution.

As Ewen says: "The establishment of positive mental health is largely dependent upon innate constitution, personality and the capacity for adaptation" (Ewen, 1947).

There is a good deal of evidence to show that subnormal mentality is biologically inherited. Tredgold states that the hereditary factor is responsible for 80 per cent of all feeble-minded persons. L. S. Hollingworth puts the figure at 90 per cent.

Further evidence has been provided by twin studies, such as were carried out by Hirsh and Carter (Hirsh, 1930; Carter, 1940).

It is probable that environment has some effect upon mental constitution.

Burks and Freeman, who studied the effect on the intelligence quotient (I.Q.) produced by changes in environment relating to foster-children, found ultimate variations in the I.Q. ranging from 7.5 per cent to 17 per cent (Burks, 1928; Freeman, 1928). Skeels found variations as high as 30.5 per cent after an average of twenty-two months in foster homes (Skeels, 1940).

On the other hand, Goodenough and Maurer found that nursery school training had no appreciable effect upon the I.Q.s of the children receiving it (Goodenough and Maurer, 1940); in addition, Hildreth's studies in Lincoln School produced a similar conclusion (Hildreth, 1940).

It appears, therefore, that heredity is the most important factor determining mental constitution, and that there is evidence suggesting that environment also plays a part in shaping the mental constitution of children.

It is unlikely that we can do anything to improve the mental constitution of the soldier, since by the time a man is old enough for military service his mental development has been completed. Yet it is important that all those who manage and administer men should understand that differences in mental constitution do exist and that they should act accordingly.

An individual with a defective mental constitution, however slight the defect may be, is more likely to break down under stress, particularly the stress of battle, than is an individual with a sound mental constitution. On the other hand, an individual with such a defect is usually capable of useful work provided that his employment suits his mental constitution, and provided that he is properly managed.

However, the importance of the hereditary constitutional factor in mental disorder must not be overstressed. Ewen points out that, although genetic

factors are of much importance in mental health, the role that may be played by environmental influences is becoming more and more appreciated (Ewen, 1947). This is of practical importance, since environmental stresses may be lessened, but the innate constitutional make-up is difficult to alter.

Environmental Factors

Psychological Environment.—The psychological environment is made up of adverse and beneficial factors. The adverse factors are those which create mental tension and tend to propel the individual into the negative phase of mental health. The results of this tension vary according to the mental constitution of the individual. A perfect mental constitution will enable the individual to tolerate certain amounts of such tension and to discharge it normally without impairment of mental health. The individual with an imperfect mental constitution tolerates lesser amounts of tension, is apt to suffer from accumulations of it and is prone to discharge it in abnormal ways.

The beneficial factors are those which afford opportunities for the normal discharge of mental tension, and, such discharge being completed, tend to propel the individual into the positive phase of mental health thereby contributing sensations of well-being.

Hence the perfect psychological environment is one in which only beneficial factors exist; there are no adverse factors to confuse, frustrate and preoccupy the mind, or to distract it from the business in hand; while from the beneficial factors spring comfort, contentment and encouragement.

A good, but not perfect, psychological environment is one in which the adverse factors are offset by those which are beneficial; opportunities for rest, relaxation and the discharge of mental tension exist. The effects of the adverse factors are made bearable by the knowledge that relief is at hand.

A bad psychological environment is one in which the adverse factors outweigh those which are beneficial; the "atmosphere" is one of worry, frustration and perhaps fear; mental tension accumulates, and the opportunities for its discharge are inadequate or entirely absent. In such a situation mental tension accumulates until, sooner or later, some crisis may precipitate a breakdown.

The beneficial factors in the psychological environment are those which build up the individual's basic convictions of competence, power and worth, which fulfil the need for security and which enable the individual to identify himself with the group.

Competence.—This is the conviction of personal ability and skill to pursue a group aim. Any factor in the psychological environment which enhances this conviction is beneficial; to this end, encouragement and stimulation of a man's pride in his skill and interest in his job is far more useful than criticism.

The conviction of competence brings with it the beneficial feeling that a job has been well done, which is an important incentive to good work. If this conviction is to be successfully attained, training must be expert and

thorough; moreover, the individual must be made to feel the relevance of his training to the tasks of the group.

Closely linked with the need for the conviction of competence is the need for adequate means of expression for creative instincts. Creative instinct is a basic trait; lack of opportunity for its expression leads to frustration and, eventually, either apathy or increased mental tension. It is a driving force which, if used to the full, can be a powerful stimulus to good work. The "browned-off" soldier is often one whose creative instincts are continually being smothered by too much supervision and regimentation.

Power.—Power must be real if competence is to count. Aspects of power which are important to the soldier include the power to march long distances, to endure lack of sleep, to carry heavy loads and the power and efficiency of weapons. A conviction of having power in one's own sphere is an important factor in mental health.

It has been said in the past that "the soldier's best friend is his rifle"; the veteran lavishes affection on his weapon with "a devotion tantamount to idol worship" (Kardiner, 1947); to him it is a symbol of power without which his competence is useless.

Worth.—An individual must feel valued by himself, his group and his leaders. The value of his job to the group must be known to him, and he must feel that his skill is being used to the full.

The amount of reassurance of worth which an individual requires varies according to his personality; some require more reassurance than others, and this fact should be appreciated by all who manage men.

It is important that credit should be given where credit is due; no matter how humble a task may be, its conscientious and efficient performance must receive adequate recognition from time to time. A feeling that one is overlooked or not appreciated is most damaging to mental health; some individuals are more susceptible to this mental trauma than others. Similarly, bad work should not be allowed to go unnoticed; the slacker must not be allowed to "get away with it," otherwise the mental health of others in his group will suffer.

The need for the conviction of worth is closely linked with the need for status. All men seek status of some kind, although some are more easily satisfied than others. This need for status is recognized by the custom of making honours and awards which are of no material value to the recipient. An important principle in this connexion is that every individual must be given the status he deserves; errors made concerning this principle inevitably result in damage to the mental health of the group, and often to that of the individual himself.

Security.—The need for security is a basic requirement of good mental health, and a sense of insecurity is a powerfully adverse factor.

In industry it has been shown that insecurity is a common cause of unhappiness and inefficiency. During the past fifty years much has been done to give the industrial worker greater security, such as social legislation, Trade

Unionism and special sickness benefits as arranged by some firms. But, whereas for the industrial worker the most potent cause of insecurity is interruption of earning capacity, either by unemployment or sickness, as far as the soldier is concerned this is not so. The soldier's earning capacity is not interrupted by sickness, unless he becomes unfit for further service; neither is he at risk with regard to unemployment as long as he remains in the military community.

Apart from insecurity arising from the danger of partial or complete destruction in battle, the soldier's need for security is mainly associated with the need for the security of the family group to which he belongs. No matter how good the emotional ties made in the Army may be, they do not displace the soldier's home ties. It is true that exceptions to this rule may exist, and that the Army ties of the Regular Soldier are usually stronger than those of the National Serviceman; but it is also true that family troubles upset the soldier's sense of security more commonly than any other factor.

The period of adjustment to a new situation, or adaptation to a new environment, is usually accompanied by a temporary sense of insecurity; this may be regarded as a normal reaction. It must be realized that such situations abound with adverse psychological factors which tend to propel the individual towards the negative phase of mental health. A new situation is apt to produce in the individual mental tension which results in a feeling of being ill-at-ease which is experienced in some degree by all men. It is important that those who manage and administer men should understand that individuals in that state should be shielded from avoidable stresses until they have had a chance to settle down. All too often newcomers to a particular environment are treated in exactly the opposite way by their superiors, equals and inferiors alike. Examples are easy to quote; the "ragging" of the schoolboy during his first term; the "initiation ceremonies" practised at some universities and factories; the practice of "taking it out" of newcomers by school prefects. N.C.O.s and senior soldiers, charge-hands and foremen. It is true that most individuals have mental constitutions tough enough to weather the storm; it is also true that some individuals who possess exaggerated ideas of their own importance may deserve such treatment. However, although it is a mistake to "molly-coddle" newcomers, such practices are not consistent with a good mental hygiene, and inevitably produce a certain number of psychiatric casualties among less stable and emotionally immature individuals.

In recent years the community at large has become more humane and enlightened regarding these matters, so that newcomers, particularly in the school and military communities are persecuted, if at all, much less than they used to be.

These considerations are of practical importance with regard to the young National Serviceman's introduction to Army life. A certain proportion of these young men are emotionally immature as the result of maternal over-solicitude due to disrupted homes and the absence of the father during the war. The stress of separation from the security of the home environment

tends to precipitate a breakdown of varying intensity in these unstable recruits; such breakdowns have been termed "separation anxiety," a state of pathological home sickness due to a failure to make new ties and hence to find security in the new environment.

Hence special attention needs to be paid to the problem of aiding the National Serviceman to settle down, in order that their military service may be of maximum value. This matter is even more important now that the duration of National Services so short.

Identification with the Group and Its Aims.—A sense of "belonging" is a prerequisite of good mental health, and this involves being identified with a group and its aims.

This sense of identification with the group is based upon the individual's personal conviction of his competence, power and worth in relationship to that group, as already described. These three criteria also influence the mental health of the group as a whole.

The individual must feel that the group to which he belongs has competence, and that it is well trained, well equipped, skilled and functionally efficient.

The individual must also have confidence in the power of his group; he must believe that it is powerful enough to overcome difficulties and to endure and suffer loss without breaking.

The individual's conviction of group worth is concerned with his satisfaction with the declared ambition of the group. He must feel that right is on his side, and that the cause of the group is worth fighting for. This involves war aims in times of war, which must be replaced by some definite group purpose in times of peace.

In order that the individual shall be properly identified with the group and its aims, and in order that he shall be convinced of its competence, power and worth, it is important that he shall understand the nature and functions of the group as a whole. He must be kept "in the picture" at all times, so that he can understand how he fits into the scheme of things and how his efforts contribute towards the attainment of the group aim.

Some interaction, and perhaps rivalry, with other groups is an important aid to fostering the conviction of group worth; the possession of customs and traditions is a valuable asset in this connexion.

The group's assessment of the competence, power and worth of the leader plays an important part in the maintenance of the mental health of that group.

As far as the group is concerned, the outward and visible signs of his competence are, firstly, the success of the group due to his leadership, secondly, the smooth functioning of the group due to his planning and control, and thirdly, the physical and mental comfort of the group due to his prevision and provision. The group sees the power of the leader reflected in his physique, intellect and character; the group's opinion regarding the stature of its leader compared with the leaders of other groups is also important. The group's assessment of the worth of the leader is based on the agreement of the group regarding his

value, and a conviction of his personal interest in each individual; it is based also on agreement with his motives and basic philosophy.

Physical Environment.—Physical health: The body is part of the environment of the mind, therefore an individual's mental health is conditioned by his state of physical health. The reverse of this statement also holds good; an individual's physical health is conditioned by his state of mental health, and from this we can infer that the mind is part of the environment of the body. It is well recognized that all physical diseases have their psychological aspects, and not merely his disease, is stressed. In striving to promote and maintain mental health we cannot neglect physical health. "Mens sana in corpore sano" is a well-worn tag; the truth is, however, that "mens sana" cannot exist without "corpus sanum," neither can an individual attain optimum physical health, unless he also attains optimum mental health.

In recent years increasing attention has been paid to the somatic manifestations of mental ill-health; the part played by adverse psychological environmental factors in producing physical ill-health becomes more and more apparent as our study of the subject continues.

We now realize that mental stress is an important factor in the ætiology of many physical conditions, notably peptic ulcer, cardiovascular disease and a large number of dermatological afflictions. The fact that this psychosomatic process can, and does, operate in the reverse direction must not be overlooked. The individual suffering from the manifestations of peptic ulcer may be propelled towards the negative phase of mental health by his unhappy experiences due to his physical condition. The mental ill-health produced by skin conditions, especially if the face is affected, is noteworthy.

We can conclude, therefore, that mental and physical health are interdependent, and that the goal of optimum mental health cannot be reached unless measures are taken to enhance both mental and physical health simultaneously.

Basic Physical Requirements.—There are four basic physical requirements necessary for good mental health, viz. food and drink, shelter, rest and relaxation, and sexual adjustment.

On account of the various exigencies of military service it is frequently impossible to provide for the soldier the means whereby these requirements may be ideally fulfilled. But provided that the soldier understands, and accepts as valid, the reasons for any inevitable privations, very little harm may be done as far as mental health is concerned. The soldier's physical environment should be made as comfortable as circumstances allow; a policy of "roughing it" for its own sake is senseless and bad man-management.

The danger lies in a physical environment in which avoidable privations exist; privations due to incompetence, inefficiency, lack of foresight or lack of interest on the part of leaders and administrators. Hence the part played by leaders and administrators in maintaining the mental health of the military community is an extremely important one.

Food and drink: One of the first duties which the young regimental officer

learns to perform is concerned with attendance at the men's mess while meals are in progress. This duty has a deep psychological significance quite apart from considerations of discipline, nutrition and general hygiene. If a soldier makes a complaint concerning his food it is often impossible to remedy the matter on the spot; it may be too late, all the rations may have been cooked and distributed, so that action can only be taken in respect of future meals. Yet the very presence of an officer advertises the fact that the administration is interested in the soldier's physical requirements, and is one of the many details which influence the soldier's mental health.

The need for food and drink is the subject of one of man's most primitive urges. A community will tolerate a good deal of hardship provided that it is well fed, and the soldier's opinion as to whether a unit is good or bad is frequently determined by the standard of messing. Good messing is often the "saving grace" of a unit; the "glue" which keeps the unit sticking together. The work may be tough, or boring, or both, the Commanding Officer may be considered a bit of a tyrant; the accommodation may leave much to be desired; yet if the standard of messing is high the level of morale can also be high in spite of the adverse factors.

Shelter: The provision of adequate shelter from the weather by good housing and suitable clothing does much to enhance mental health; avoidable hardships in this connexion inevitably lead to unrest and discontent.

Rest and relaxation: Physical exhaustion, fatigue and lack of sleep all contribute to mental ill-health; monotony and boredom are associated factors. The antidotes are careful supervision of duty rosters to ensure adequate opportunities for rest and sleep, and proper arrangements for leave and recreation.

To be really effective, facilities for rest and relaxation must be combined with opportunities for variation of activity. Hence arrangements for rest pauses during working hours, and for leave, must be combined with measures to combat the unavoidable monotony of necessary routine tasks and with organized recreation and welfare.

Sexual adjustment: Freud has taught us the importance of the sex drive with regard to mental health, and we now realize that frustration of sex needs may result in serious neurotic disorders.

Problems relating to sex are liable to occur in the military community more often than in civilian life on account of the unavoidable segregation of the sexes, particularly in overseas stations.

An important measure for combating these difficulties is the provision of family quarters wherever possible. With regard to overseas stations in wartime this can seldom be done, for obvious reasons; but in peacetime it should be possible to supply an adequate number of family quarters in all but a very few stations.

Signs of frustration of the sex needs become more obvious when the soldier is bored and has insufficient means of occupying his spare time. Hence organized sports and games, libraries, cinemas, study groups and clubs of all kinds are important. It has been noted in the past that units which had the best

organization for welfare and recreation had the lowest incidence of venereal disease.

Other Physical Requirements.—A variety of other physical factors have a bearing on the soldier's mental health, such as thermal comfort, ventilation, lighting and the design, decoration, furnishing and equipping of barracks.

These details are discussed at length in a paper entitled "A New Life for the Soldier" which has been circulated within the Army by the Directorate of Army Health.

SECTION IV.—PERSONNEL SELECTION

"Fighting is not a civilian trade, and not everyone can adjust himself, even with the best philosophic understanding, to the necessities of killing, even if he has been able to face the possibilities of future mutilation or death for himself. He may have found himself, once his basic training was completed, posted to an occupation which needed much greater ability and comprehension than he possessed; and he may equally have found himself set to tasks which gave him no scope and which made little use of very good intelligence" (Rees, 1946).

The rock on which good mental health in the military community is built is personnel selection. Moses appreciated this fact, and in Chapter 20 of the Book of Deuteronomy he made several points concerning the selection of personnel for military service. He realized that men with domestic worries did not make good soldiers. "And what man is he that hath planted a vineyard, and hath not eaten of it? Let him also go and return to his house, lest he die in the battle and another man eat of it." . . . "And what man is there that hath betrothed a wife, and hath not taken her? Let him go and return unto his house, lest he die in battle and another man take her" (Deuteronomy, Ch. 20, verses 6 and 7).

The British War Office Committee of Enquiry in Shell Shock, whose report was published in 1922, stressed the importance of personnel selection in mental hygiene. This report states that officers engaged in the medical examination of recruits did not pay sufficient attention to "conditions of the nervous system" and, as a result "a great number of men who were ill-suited to stand the strain of military service, whether by temperament or their past or present condition of mental and nervous health, were admitted into the Army." The Report goes on to say that "There is no doubt that such men contributed a very high proportion of the cases of hysteria and traumatic neuroses commonly called shell-shock" (Report of the War Office Committee of Enquiry into Shell Shock, 1922).

In spite of the Report of this Committee we in Britain were slow to use systems of mental testing in the selection of our recruits. The United States had already used massed intelligence testing for selection in the period 1916 to 1918.

Sir Ronald Adam tried to introduce mental tests into our selection procedure in 1921, but his suggestions were not adopted. The German Army commenced to use such tests in 1926, and, after a visit to Germany, General Thorne made an attempt to introduce similar tests into our Army but did not succeed.

However, early in World War II we discovered that the mental aspect of personnel selection was vital. In 1939 two consulting psychiatrists were appointed to the Army, one for the British Expeditionary Force and one for the Home Forces; they found that many men suffering from psychiatric breakdown were mentally defective. This was confirmed by Command and Area psychiatrists appointed in 1940. It had become obvious that the modern infantry soldier would probably break down unless he was of a certain mental level.

After 1940 our procedure for personnel selection developed rapidly. The Directorate for the Selection of Personnel was set up in 1941, and the General Service Corps intake scheme was introduced in 1942. This scheme involved the posting of all recruits to the General Service Corps for a preliminary six weeks' period of basic training; complete selection procedure took place during this period. The recruits were subjected to a battery of tests, abstract, verbal, practical and educational; they completed questionnaires giving all the details of their careers prior to joining the Army; they were interviewed by personnel selection officers, and, when indicated, by psychiatrists; and they were physically examined to determine their appropriate medical category. At the end of this six weeks' period of preliminary training they were posted to the Corps or Regiment for which they were most suited.

The technique of group testing for the selection of officers by War Office Selection Boards was introduced a little later.

Thus was our modern system of personnel selection born. It exists in a similar form today, although it has been modified by the replacement of the General Service Corps procedure by that of Army Basic Training Units in 1948.

The introduction of the Pulheems system of medical classification, which superseded the old system of medical categories, was an important advance from the point of view of mental health in that assessment of the qualities of mental capacity and emotional stability was introduced.

By means of a thorough and scientific method of selection procedure, which we now use, we can weed out a large proportion of those men who are likely to break down, and who therefore require "sheltered" employment or discharge from the Army. These men who are filtered out by the mesh of selection procedure are referred to a psychiatrist, and they fall into the following groups:

- (1) Men of low intelligence.
- (2) Stammerers.
- (3) Illiterates.
- (4) Men educated at Approved Schools.
- (5) Men with a history of psychiatric illness.
- (6) Men with a history of delinquency.
- (7) Men showing psychiatric symptoms or abnormal behaviour.
- (8) Men producing incongruous results in the battery of tests.
- (9) Men apparently lacking in "combatant temperament."

The psychiatrist recommends the suitable disposal of such men; the recommendations which he may make are as follows:

- (1) No psychiatric recommendations necessary.
- (2) A specific type of employment.
- (3) Lowering of the Pulheems "S" rating ("S"=emotional stability).
- (4) Admission to a military neurosis hospital if rehabilitation for further service seems possible.
- (5) Discharge by a medical board on the grounds of neurosis.
- (6) Admission to a military mental hospital for psychosis.
- (7) Discharge by a medical board on the grounds of mental defect.
- (8) Discharge from the Army as physically unfit for service under present standards, but fit in the case of Emergency. This applies to men who have more than sixteen weeks' service (King's Regulations, 1940, Para. 390, 16 (a)).
- (9) Discharge from the Army as unsuitable for military service on medical grounds. This applies to men who have less than sixteen weeks' service (King's Regulations, 1940, Para. 390, 6 (a)).

In addition to the detection and disposal of men likely to break down, such as I have described above, our personnel selection procedure does much to ensure that a normal individual is not employed on work for which he is not suited. This in itself is a most important factor in the promotion and maintenance of mental health.

SECTION V.—THE EMPLOYMENT OF INDIVIDUALS WHO ARE POTENTIAL "MISFITS"

Dullards.—These are men who score low marks in the Matrix Test and in the battery of tests which measure specific abilities. Men are grouped in various Selection Grades (S.G.) according to their scores in the Matrix Test; these grades range from S.G.1 (High intelligence) to S.G.5 (Low intelligence). In addition, the sum of the scores of all the tests, both Matrix and specific abilities, are worked out to give the Summed Selection Grades (S.S.G.).

The spread of intelligence in the young adult male population in this country is approximately as follows:

S.S.G.1	10 per cent High intelligence
S.S.G.2	20 per cent Good intelligence.
S.S.G.3 +	20 per cent Above average intelligence.
S.S.G.3 -	20 per cent Fair intelligence.
S.S.G.4	20 per cent Rather dull and backward.
S.S.G.5	10 per cent Very dull and backward.

Individuals who score S.G.5 and S.S.G.5 are known as "double fives." Such men are automatically referred to a psychiatrist at intake, and are not accepted as volunteers for the Regular Army. Whether or not they are accepted for National Service in the Army depends upon physique and emotional stability. Unstable dullards are discharged on medical grounds.

Approximately 60 per cent of all S.G.5 recruits are recommended for normal military training in the units into which they have been enlisted. The remaining 40 per cent represents those of poorer quality, some of which are recommended for simple administrative and domestic duties, others are recom-

mended for transfer to the Royal Pioneer Corps. Unfortunately, some find employment in messes, kitchens and dining halls. This is not good policy as food hygiene suffers; particularly as such men are liable to show a low standard of personal hygiene, and may be chronic or "healthy" carriers of pathological organisms. Men recommended for the Royal Pioneer Corps must be fit for labouring work in any part of the world and to bear arms in self-defence.

Men of lower intelligence, who are so dull and backward as to be unfit to bear arms, used to be recommended for the unarmed section of the Royal Pioneer Corps; this Section has been abolished since World War II, therefore such men are now recommended discharge under King's Regulations, 1940, para 390, as quoted above.

Those with degrees of mental defect lower than dullness are also recommended discharge.

There are two rules of importance relating to the employment of dullards who are retained in the Army. Firstly, they must be employed on work which is within their mental capacity, and secondly they must be employed in company with other individuals of the same intellectual level. If these rules are complied with, the dullard can be a useful, stable and happy member of the community; but if they are not complied with, the dullard's morale sinks, he becomes unhappy and increasingly inefficient, and is liable to get into all sorts of disciplinary trouble and to break down completely.

As Rees has pointed out, there has been a popular tradition in the past that the dull man makes a good soldier. But the modern soldier has so many weapons to learn, and so many skills to master, that an impossible task is presented to the dull man; in addition, the dullard is apt to break down under the stress and increased tempo of modern war (Rees, 1946).

Psychopathic Personalities with Anti-Social Trends.—These men are a great source of trouble in the Services, as indeed they are in the community at large. They do not have specific signs and symptoms of illness as do psychotics and psychoneurotics, but instead their disturbance is one of action and social behaviour.

The legal definition which is applied to this condition is "moral defective," but a better medical term is "psychopathic personality with anti-social trends."

Their outlook is characterized by short-term values, and they demand immediate satisfaction for their impulses and desires (Chevens, 1949).

Throughout their development, the conduct of these psychopaths gives cause for alarm owing to its wayward, impulsive, violent and undependable nature. They show a coldness, a hardness, and insensibility to the feelings of others and an absence of remorse which makes them exceedingly difficult, if not impossible, to reform. Very often they show a previous history of juvenile delinquency and crime, and of a "rake's progress" via Approved School and Borstal Institution to H.M. Prison.

They are often supposed to be good fighters in a "tough spot." This may be so provided their anti-social trends can be projected against the enemy:

but they are usually more trouble than they are worth, since more of their time is spent training or living behind the "front line" (Rees, 1945).

Such men exert an extremely bad influence in a unit, particularly on suggestible and poorly adapted soldiers and those of low intelligence. They cause an increase in disciplinary troubles and a deterioration of morale. They are consumers of man-power rather than contributors, since they are constantly getting into trouble.

These men are of no value to the Army, and should be disposed of with the help of the nearest Army Psychiatrist.

It is sometimes said by Commanding Officers and other leaders that such men deliberately seek discharge from the Army on account of their behaviour, and that they should not be allowed to "get away with it." This is a very understandable point of view; however, experience has shown that the psychopath with anti-social trends should be removed from the military community as rapidly as possible.

The question of exclusion of the potential psychopathic delinquent from military service by paying special attention to the problem during selection procedure is a difficult one. For obvious reasons, one cannot exclude all who have a bad civilian record of crime and juvenile delinquency.

As further experience is gained with regard to these cases it may be possible to exclude a great deal more of them than are being excluded at present. The use of the electroencephalogram as a diagnostic aid is promising; there is a similarity between the electroencephalograms of these aggressive psychopaths and those of young children and epileptics (Rey, Pond and Evans, 1949).

As the ætiology of this condition has its roots in heredity and childhood environment, preventive measures lie within the sphere of the civilian health services. The importance of bad home and childhood influence have been strikingly revealed by investigation into the histories of psychopathic delinquents in the Army.

The amount of serious crime perpetrated by these psychopaths in civilian life must be considerable; yet, with the Law as it is at present, very little can be done to protect society against these dangerous men. Even long terms of imprisonment appear to have but little reforming effect, so that they constitute a menace whenever they are at large. I suggest that there is scope for improvement of the Law with regard to these cases, so that society may be more adequately protected.

Other Unstable Personality Types.—It is often difficult, in any sphere of medicine, to distinguish between the normal and the slightly abnormal, and between the physiological and the slightly pathological. Such distinctions are exceptionally difficult to make with regard to considerations of personality and behaviour.

In medicine and the allied sciences the word "normal" is often synonymous with "average"; this can be said to be true of such characteristics as height,

weight, pulse-rate, blood pressure, etc. With regard to personality and behaviour, "normal" can be said to be synonymous with "usual" or "conventional."

As Pozner points out: "The authenticated eccentricities of military genius make fascinating reading, and raise an interesting point as to whether our great leaders became so because of their biases, mannerisms or peculiarities, or developed them in order to emphasize the isolation of command to cloak its vulnerability . . .; it is an interesting commentary on the modern trend towards universal standardization that many of our great captains, now legendary and dead, would have, by reason of their obvious instability and unequally balanced characters, failed to clear the first obstacle on the road to the present-day Officer Cadet Training Unit" (Pozner, 1950).

Opinions differ widely as to those personalities which are within normal limits and those which are not. Concepts of normal behaviour vary according to individual ideas, nationality, tradition, upbringing, education and the period in history. It is therefore impossible to give an exact description of a normal personality, and such a concept must remain a matter of opinion.

There are, however, certain mental traits which, although present to some degree in all individuals, may be exaggerated yet not pathological in others. Such exaggerated traits produce unstable personality types which we may consider to be within the normal range.

It is important that all those who manage and administer men should recognize the existence of these different types of unstable personality, and that they should understand how men with such personalities are best employed and handled. The importance of this is twofold. First, an individual with an instability of personality, however slight, is more likely to break down under stress, particularly the stress of battle, than one with a stable personality; and second, the individual with the unstable personality is usually capable of useful work, sometimes work of outstanding merit, provided his employment suits his mental constitution, and provided he is properly managed. If he is not so employed and managed he works less efficiently and may break down completely; if, and when, he does break down the illness which he develops is usually that which is appropriate to his already exaggerated personality traits.

Individuals with marked traits may have been perfectly adjusted to their environments in civilian life; yet, despite any assistance we may give them, they may find adjustment to the military environment impossible. Others, provided care is taken to employ and manage them suitably, may adjust successfully and settle down to become useful members of the community.

There is no doubt that if a prospective recruit shows evidence of instability which makes his adjustment to military life a matter of doubt, he should not be accepted for service. However, consideration of man-power economy, especially during wartime, make it necessary for us to accept a certain number of "border-line cases."

It is important, therefore, that we should do everything possible to assist

these men to adapt themselves to military life. If we do not do this, much time, money and effort is wasted training men who are ultimately discharged on psychiatric grounds, and, in addition, we should be failing in our duty to the men themselves.

The main unstable personality types are as follows:

- (1) The obsessional.
- (2) The hysterical.
- (3) The overanxious.
- (4) The paranoid.
- (5) The cycloid.
- (6) The schizoid.

The obsessional personality: The obsessional personality is orderly, neat, meticulous and punctual. He is interested in details and is over-scrupulous. He shows a tendency to sarcasm and destructive criticism which may be sublimated to an analytical outlook.

It is obvious that all of these traits may be found in a completely stable personality; in fact, many painstaking pieces of research could not have been carried out unless the worker concerned possessed these traits. On the other hand, an individual may display these traits to such a marked degree that a diagnosis of obsessional neurosis is merited.

The man with the obsessional personality should be given employment which exploits these traits. The work of the storeman, for example, affords great scope for those who insist upon orderliness and neatness. Some types of research, and work which requires meticulous care, are suitable for the obsessional. But it must be remembered that he cannot be hurried, and must be allowed to work at his own speed, hence he finds it difficult to work in a team.

Employment unsuitable for the obsessional is that which calls for elasticity of thought, adaptability and frequent change. Obsessionals are not likely to make good employers, leaders or administrators unless they possess other compensating qualities. They are apt to become involved in too much detail, and are loath to delegate work to others. They are prone to harass and irritate their subordinates, and show a stubborn inability to see other people's points of view.

The hysterical personality: The hysterical personality is emotional, theatrical and attention-seeking. He shows a contrast between shallowness of thought and intensity of expression, and is usually somewhat naïve and suggestible.

The individual with a hysterical personality is intolerant of mental tension, so cannot be depended upon in a crisis; hence he should not be employed in the "front line" (wherever that may be in this age of atomic and hydrogen bombs). He tends to lack determination, but will work well provided he is made to feel that he is accepted and approved of by his superiors and associates. Praise is one of the incentives he values most, and he responds well to encouragement.

The overanxious personality: The overanxious personality is apt to be pre-

occupied with possibilities rather than probabilities. He tends to "cross his bridges before he comes to them" and is a chronic worrier. He is characterized by a general air of tension and anxious expectancy. When making a request, an explanation or an excuse, he tends to be overanxious lest his case should not be understood, so that he loses himself in a mass of detail.

He is prone to attempt escape from difficult situations by developing mild "illnesses," which are real enough to him, such as headaches, "dyspepsia," or "rheumatism." He may over-dramatize worries concerning his home and family, or the discomfort of his immediate surroundings.

The man with this type of personality breaks down more easily than most, and may develop an anxiety neurosis.

The change from military to civil life frequently enhances the traits of the overanxious personality, and is liable to produce a condition known as "separation anxiety." Separation anxiety is often seen in the military community because of the enforced separation from home. The stress caused by removal from the protection and security of the home environment precipitates a breakdown of varying intensity in unstable recruits. The condition is stated to have accounted for more mental breakdown in World War II than battle stress (Chevens, 1949). It is prevalent among National Servicemen today because they are emotionally immature as the result of maternal over-solicitude due to disrupted homes and the absence of the father during the war.

Separation anxiety may be described as "pathological home-sickness." The individual suffering from this condition may show any of the abnormalities described above in relation to the overanxious personality; these abnormalities may be comparatively mild, or they may be severe and disabling.

The young soldier with the overanxious personality requires careful handling during the first six months of his military career. If he is going to break down at all, he often does so either before or soon after his primary training is completed. If he can be shepherded through this initial period of adjustment to Army life, he usually settles down and develops normal independence, maturity and individuality.

The handling of such men requires great patience and understanding, and the medical officer has an important part to play in this: this matter is discussed further in Section VI of this paper.

The paranoid personality: The paranoid personality is suspicious, morbidly sensitive, and prone to grievances. He is a stickler for his rights, and is apt to go out of his way to seek an insult where none is intended. He is usually a solitary and egocentric person, and is rather prone to consider himself misunderstood.

As a rule, these traits do not become obvious until the individual reaches middle age. This state is the pre-psychotic personality of paranoia, although the development of the overt psychosis is comparatively rare.

Individuals with paranoid personalities are often extremely intelligent and forceful; they can achieve success in business and high rank in the Services.

For obvious reasons they are not good team workers, and are usually difficult to work for and to administer. They are not lacking in drive and initiative, and usually do well if employed on tasks demanding these qualities, provided they are subjected to the minimum of outside interference and criticism.

The cycloid personality: Typically, the cycloid personality is extraverted and shows a greater liability to mood-swings than is normal. He is a good "mixer," and has been described as "infinitely clubbable." He seeks and enjoys company, and, as likely as not, he is the "life and soul of the party."

This type is the prepsychotic personality of manic-depressive psychosis, although the development of the overt psychosis is uncommon.

Kretschmer describes a correlation between this type of personality and physique; the cycloid personality he describes as having the "pyknic" physique, with large head, broad face, broad chest, large body cavities and a tendency to be short and stout.

Such individuals are good team-workers, and usually possess organizing ability which is above average.

They do not do well at tasks which involve working alone for long periods separated from their fellows, and are apt to become unduly moody and depressed under such circumstances. They tend to be somewhat unpredictable, over-elated by success and over-depressed by adversity. Hence they tend to lack determination in the face of difficulty.

The schizoid personality: Typically, the schizoid personality is solitary and intraverted. He has a "shut-in" mentality, does not make friends easily and prefers his own company.

He is shy, keeps out of the way, and rarely causes any trouble. He is timid and relatively unemotional, and finds it difficult to adapt to changes in environment. This is the pre-psychotic personality of schizophrenia.

Kretschmer describes a correlation between this type of personality and the asthenic physique: lean and long, with flat chest, narrow shoulders and thick, low-growing hair.

Individuals with this type of personality are difficult to place in employment, as they tend to be unadaptable and apathetic. They need a quiet and protected environment. Once they are doing work which suits them they should be left to get on with it with the minimum of interference.

(To be continued.)

RECENT ADVANCES IN THE TREATMENT OF AMŒBIASIS

BY

Lieut.-Colonel W. H. HARGREAVES, O.B.E., M.R.C.P.

Royal Army Medical Corps

Medical Specialist, Q.A. Hospital, Millbank

ANTIBIOTICS IN AMŒBIC DYSENTERY

There are still many gaps in our knowledge of this disease. Most persons infected with *Entamoeba histolytica* are symptomless carriers and exactly what circumstances govern the pathogenesis of this parasite is uncertain. Possible factors are variations in susceptibility of the human host, the virulence of the particular strain of amœba, the mass of the infection, climate, and synergic action of bacteria, any or all of which may play a part. The bacterial factor was found to be important in 1944, when severe cases of amœbic dysentery which had proved refractory to the usual treatment were eventually cured when this treatment was preceded by a course of penicillin combined with succinyl-sulphathiazole. The newer antibiotics, bacitracin, aureomycin, and terramycin at present are showing promise in the treatment of amœbic dysentery although they are probably not amœbicides; as yet no drug has been found which will compare with emetine *in vitro* against *E. histolytica*.

In the British Army, 11 cases have been treated with oral bacitracin and all showed a rapid clinical response. As a rule, sigmoidoscopic appearances were normal within two weeks and the stools became free from amœbæ. The dosage used was 2 tablets (10,000 units each) given by mouth every six hours until the ulcers had healed. 7 of these 11 cases have remained clear for periods ranging from six to thirteen months. 2 relapsed; 1 after two months and 1 after seven months. 2 have not been followed up. The 2 relapsing cases both responded to a further course of bacitracin which this time was followed by a course of diodoquin, and they have now remained clear for seven months. All these cases had dysenteric symptoms and on sigmoidoscopy ulcers were seen from which material was aspirated using a long capillary pipette. Vegetative *E. histolytica* was identified in every case.

Aureomycin has proved effective in a dosage of 250 mg. six-hourly by mouth for fourteen days. 12 cases of amœbic dysentery have been treated and all responded rapidly. 2 had cysts of *E. histolytica* in the stools one month later and one relapsed completely after six weeks. 1 patient developed amœbic hepatitis three months after treatment with aureomycin. *Terramycin*,

the newest of these agents, appears to be giving similar results. In view of the relapse rate following the use of antibiotics alone in amœbic dysentery, there seems no doubt that a known amœbicidal drug such as diodoquin should be given in addition.

CHLOROQUINE IN METASTATIC AMŒBIASIS

Conan's observation in 1948 regarding the efficacy of chloroquine in hepatic amœbiasis has been confirmed in further publications. In intestinal amœbiasis this compound is much less effective than other amœbicidal agents, but it is readily absorbed from the intestinal tract and becomes highly concentrated in the tissues, particularly in the liver. Given by the mouth it has proved highly effective in hepatic and pleural amœbiasis, cures have been reported in cases which had been unsuccessfully treated with emetine, and chloroquine has the great advantage of being comparatively non-toxic. 0·6 gramme is given by mouth daily for two days, followed by 0·3 gramme daily for two to four weeks.



At Random

B.C.G.

BCG vaccination has come into use in the Service.

"It has been decided that certain personnel of the R.A.M.C. and Q.A.R.A.N.C. whose nursing and other duties are liable to bring them into contact with cases of tuberculosis will be immunized by BCG vaccine."

"Vaccination will be offered to those who do not react to tuberculin (Mantoux-negative reactors) in the undermentioned groups of personnel:

All soldiers who enlist on a regular engagement in the R.A.M.C.

All Officers and Other Ranks of the Q.A.R.A.N.C."

"Owing to the numbers involved it is not possible at present to offer BCG immunization to members of the R.A.M.C. other than those mentioned above. But no member of the R.A.M.C., either Officer or Other Rank, who specially requests this immunization will, however, be refused" ("War Office, 23rd November, 1950").

Here then, once more, the Corps takes a leading part in advocating to its members and adopting a preventive measure against one of the major disease problems of the Services or of any other large group of individuals. This immunization against that insidious and widespread disease, tuberculosis, has been long overdue. This does not mean that there has been any particular dilatoriness on the part of the Services in adopting preventive measures; in fact this most recent instruction is direct evidence to the contrary; but there appears to be little doubt that for many years, ever since the nursing or care of the tuberculous patient had been laid on the shoulders of particular individuals, a considerable proportion of those individuals at risk have succumbed to the infection of that risk. Even in the Service, memory can readily recall cases in the Corps and the Q.A. in which Officer, Nursing Sister and Other Rank were undoubtedly infected on duty, while in certain specially susceptible groups such as Gurkha units this risk to their medical attendants was very evident.

One of the most significant features of infection by the tubercle bacillus is that it does not always cause disease; in fact, in the majority of instances no signs or symptoms are experienced when the body is primarily invaded by that organism. Two points of importance emerge from this.

The first is the great difficulty in assessing and securing a just opinion on the source of infection at some subsequent manifestation of the disease which causes active illness and invalidism from the Service.

Secondly from this it may be concluded that the human body, at least in European countries and the U.S.A., possesses considerable "native resistance" to tuberculosis and that it is only when this resistance is low, or the initial dose of bacilli large, that noticeable constitutional changes follow the primary infection.

Although this may be silent, it nearly always produces changes in the tissues which causes them to develop a hypersensitivity towards any subsequent dose of tubercle bacilli or certain products derived from them. In addition an acquired resistance is built up which enhances the native resistance and increases the powers of the tissues to overcome the toxic effect of the tubercle bacilli and to suppress their reproduction.

Advantage has been taken of this production of hypersensitivity to demonstrate the presence of any infection by means of the various skin tests; and of this increased resistance to the bacillus and its toxins to produce, and now use, a vaccine, consisting of a strain of tubercle bacilli of low virulence, for the production of a controlled primary focus and the consequent improvement of resistance, without the danger which attends natural exposure to infection by unknown quantities of bacilli. The vaccine used for this purpose consists of an attenuated strain of bovine tubercle bacilli known as the *Bacillus Calmette-Guérin*, or BCG.

The procedure for this vaccination with BCG is by no means simple, although the actual inoculation may be so. Careful testing of each individual with appropriate local tests has to be arranged; the vaccine has, at present, to be obtained from abroad and has to be used within *fourteen days* of manufacture; reading of both tests and vaccination have to be done by trained personnel and a practised eye; records have to be detailed and comprehensive; re-testing has to be carried out at yearly or bi-yearly intervals and also recorded; and finally these processes are time-consuming at a stage in the individual's service when every hour has its allotted function in the training programme.

Nevertheless, in view of the relative safety offered to those most liable to grave risk of infection, this recent introduction of BCG vaccination is one more stimulating example of the practice of preventive hygiene in the Services and is fully justified.

From the variety of local skin tests available the Mantoux test has been selected as being most reliable and most suited to Service needs. A description of the performance of the test is not required here (details are given in the circular); but it is emphasized that an *intra-dermal* injection of 0.1 ml. of a dilution of 1:10,000 tuberculin (one unit International Standard of Old Tuberculin) is given and a positive result consists of a raised area having induration of not less than 6 mm. in diameter. If negative the test is to be repeated using 0.1 ml. of a 1:100 dilution tuberculin (100 International Standard units). Recording will give the area of induration thus:

Mantoux—one unit—positive—10 mm.

The vaccination technique, to be given only to those who do not react as positive to the test, is similar in that 0.1 ml. of the material is injected

intradermally over a specific site. In successful cases a local reaction develops at the site in from three to six weeks consisting of a small papule slowly increasing in size, changing to a shallow, painless ulcer which heals in from eight to ten weeks without malaise or interference with training. Recording is to be done on a special card (provided in duplicate) for addition eventually to the documents of the individual. The record will show as follows:

Local reaction—(size in mm.)

None—papule—macule—vesicle—infiltration—ulcer—glandular enlargement—abscess.

The material to be used is a special standard suspension of the vaccine obtained by the Ministry of Health from the Serum Institute at Copenhagen. Extreme care needs to be exercised in its preparation and administration to ensure accurate dosage and absence of all contamination. Unfortunately it is also unstable and preparations must be used within forty-eight hours of receipt in military establishments. This means that vaccinations must be arranged to a set programme which must not be disrupted by other less important matters.

While testing and vaccination are being carried out it is important that the individual should be kept free from the risks of infection and therefore he or she is not available for duty with tuberculous patients for six weeks or even more.

Conversion from Mantoux negative to positive takes some six weeks and the individual is subjected to a further test to confirm this, the results being duly recorded in the appropriate documents; and annual or bi-annual retests are subsequently needed.

BCG vaccination, similarly to other protective measures, cannot be regarded as giving complete protection from future infection nor does it protect against infection acquired shortly before the vaccination. It is, however, a great advance in our protective armamentaria and there will be few who are at definite risk in the nursing of or attention to active cases who will not readily accept this measure.

One definite drawback is of course the time factor during training when every hour is allocated, but this disadvantage has been made easier for the harassed T.O. and his staff by a carefully prepared time-table included in the instructions and issued for their guidance.

In this present announcement, then, we have a very real advance in preventive medicine in the Service. May the protection afforded prove of the utmost value to those who are at greatest risk and who adopt this newly offered vaccination with BCG.

Historical

**THE ENGLISH MILITARY SURGEON
1603 - 1641**

BY

Colonel DAVID STEWART
Late Royal Army Medical Corps

JAMES VI and I was an extremely stupid man, but he did his country this service, that he kept it out of wars for a long period. His reasons for doing this may often have been foolish ones, but the result was that commercial life was able to develop without the interruptions of foreign wars and the country grew steadily wealthier. His son Charles at first reversed his father's policy, but his campaigns were so badly conceived and so poorly executed that they left him extremely short of money; and for the next ten years of his reign he made no further attempts to achieve military distinction. England from 1603 and 1639, with few interruptions enjoyed a period of peace, and little occurred that is of interest to the general military historian, but his medical brother is more fortunate, because several alterations were made in the status of the medical officers which were of fundamental importance in the future development of the medical service of the army.

In an earlier paper (*JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, 88, 231-47) I have described the condition of the medical officers in the army in Ireland, the one permanent army that England possessed during the sixteenth century. This force continued to exist during the period that we are now discussing, but its strength was radically reduced. Regiments disappeared and the army in Ireland came once more to consist of a number of independent companies. There were no regimental surgeons and not even all the companies were entitled to have surgeons. These officers were confined to foot companies only, and, by 1610, troops of horse and garrisons of castles had no surgeons on their establishment (*CSPI*, 1608-10, pp. 508-10).

During the reign of James I the company surgeons in Ireland continued to draw their old rate of pay of one shilling a day; but, in 1628, the reign of Charles I, an extraordinary alteration was made in the wages of the company non-commissioned officers, including the surgeons; instead of receiving one shilling a day, as they had done for many years, their pay was suddenly cut to ninepence, while that of the private soldier was reduced to sixpence (*CSPI*, 1625-32, p. 342). How it was thought to be possible to obtain professional men

of any attainments for this miserable pittance it is difficult to imagine; nevertheless this rate of pay continued up to at least December 6, 1641 (CSPI, 1633-47, p. 765), and possibly for longer.

In my earlier paper I mentioned that William Kelly was for many years principal surgeon in Ireland, and that after his death in 1597 he was succeeded by Walter Newton. Newton was no longer in office in 1607, for in that year the position of surgeon to the State—as it was now called—was held by Edmond Cullon (CSPI, 1608-10, pp. 79 and 507), who still retained it in 1615 (CSPI, 1615-25, p. 11). In 1623 James Weaver was surgeon to the State (CSPI, 1615-25, p. 406).

Somewhere about 1625 the name of Dickson appears in the list of captains as Chief Surgeon in Ireland at a salary of 6s. 8d. a day (CSPI, 1625-32, p. 172). It is possible that this was a new appointment designed to give the soldiers better surgical treatment than they had previously received, but I am of the opinion that this is improbable. I am more inclined to believe that it was found to be impossible to get a man with adequate qualifications to take the appointment of surgeon to the State at the salary of two shillings a day, and that it became necessary to make a new appointment with a higher rate of pay, to attract a properly qualified surgeon to treat the civil officials should they require surgical attention.

I pointed out in my earlier paper, that, after the death of Dr. Turner, the stipend of the physician to the State in Ireland was given to the Master and Fellows of Trinity College, Dublin. This arrangement can only have lasted for a few years, because, in 1610, Dr. Metcalfe's name appears as physician to the State (CSPI, 1608-10, p. 507). He held that appointment until his death in 1633. At the time of his death he was a wealthy man; he left two children, a daughter who had married but "meanly," and a son of weak intellect. Unfortunately he had made no will, and his children were not in a position to look after their own interests. This gave the unscrupulous Lord Chancellor of Ireland an opportunity of laying his claws upon the estate and he appointed one of his gang of toadies as administrator, to rob the children of Metcalfe of their patrimony (CSPI, 1633-47, pp. 9, 14, 101, 192-3).

Let us now leave Ireland and its impoverished ragtime army, and return to England to see how military affairs were being managed in that country. As in the previous reign, there was except for a few weak garrisons no permanent army. When war broke out a force had to be raised and troops recruited in a hurry. In 1620 James resolved to go to war in support of the Elector of the Palatinate, and decided to do this in a big way by raising a force of over 30,000 men. As frequently happened with this monarch, this grandiose scheme was more than his financial resources would allow, and ultimately, all that he was able to send overseas was a paltry force of some 2,000 men.

Notwithstanding the fact that it never materialized, the authorized establishment for the proposed army is of considerable interest. It indicates the strength of the medical service that was then considered to be necessary for a

large force. Furthermore this establishment was to be the pattern, with certain modification, of the medical service of the army during the whole of Civil War.

The force of 30,000 men was made up of 25,000 infantry, 5,000 cavalry, and an unspecified number of artillerymen and pioneers; and for this force the following medical establishment was authorized:

The General's Train	2 Physicians	each at 6s. 8d. a day
	2 Apothecaries	each at 3s. 4d. a day
	2 Surgeons	each at 6s. 8d. a day
Infantry Regiment	1 Chief Surgeon	at 4s. 0d. a day
	12 Surgeons (1 per company of 150 men)	each at 1s. 0d. a day
General of Horse	1 Chief Surgeon	at 4s. 0d. a day
Troop of Horse of 100 men	1 Surgeon	at 2s. 6d. a day
Ordnance and Pioneers	1 Barber Surgeon	at 2s. 0d. a day
	2 Under Barber Surgeons	each at 0s. 6d. a day
The Camp	1 Surgeon Major	at 5s. 0d. a day
	2 Mates	each at 4s. 0d. a day

(H. A. L. Howell, *JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, 2, 738)

It will be observed that here we have a regular hierarchy of medical officers, with the two physicians to the train at the top, descending to the two under barber surgeons of the Ordnance at the bottom. It would be necessary to go back to 1482, to the army of the Duke of Gloucester, to find a medical establishment that would compare in any way to this in gradation of ranks.

The number of medical men attached to the train of the general appears to be very generous for the small number of men that they must have had under their care. Yet this part of the establishment remained unaltered for many years, and one wonders whether or not these officers did not have some administrative control over the rest of the medical officers of the army. Unfortunately there is no evidence which would shed any light on this matter. The presence of apothecaries with the army is an innovation. Although there had been casual references earlier to members of this branch of the medical profession being associated with the army, this is the first occasion on which they appear in an official establishment. This probably arose from the fact, that James, in 1617, with an unexpected sagacity, and against considerable opposition, split the apothecaries off from the Grocers Company and incorporated them as a separate company called the Society of Apothecaries.

The regiments were given an allotment of surgeons that appears to be more than generous. An attempt was made to combine the old company system with the new regimental one, of which we saw the first rudiments in the last years of the reign of Queen Elizabeth. This combination of company and regimental medical officers was probably only used once, in 1624, and for the very good reason, that it was far too extravagant in medical officers.

It is interesting to see that the medical officers of the ordnance are called barber surgeons. Up to the time of their union by Henry VIII, there had been

two companies of surgeons in England, one was the Surgeons Guild, and the other the Company of Barbers. Prior to this union it had been the custom to refer to the members of the guild as surgeons, and to those of the company as barber surgeons. After the union these distinctive names gradually dropped out of use and the surgical members of the united company were known simply as surgeons. One can only suggest that it is used in this establishment to describe a man who was not so well qualified as those in the other branches of the army. Undoubtedly this would appear to be the correct explanation in regard to the junior medical officers of the ordnance, because one would hardly expect to find men with any qualifications being content with sixpence a day, the pay of a common soldier.

The appointment of a staff of surgeons for camp duty was an innovation and was not repeated. The title of surgeon's mate for the junior officers of this department is, as far as I know, the first time that this rank occurs in the army. It was to remain in use right up to the end of the eighteenth century as the title of the assistants of the regimental officer. These junior regimental medical officers were only warrant officers, and the surgeons' mates of the camp, judging by their rate of pay, must have been equivalent to commissioned officers.

Finally, it will be seen that the regimental system was confined to the infantry; the cavalry still consisted of independent troops, each with its own troop surgeon. These officers were much better off financially than their opposite numbers in the infantry; but it must be remembered that they probably had to provide and maintain their own horses.

The next establishment of which we have a record is that for the army for the first Bishops War of 1639. This is preserved in a document in Rushworth's "Historical Collections," II, pp. 1046-50, which gives a detailed account of the constitution of the English army in this campaign. From this I have extracted the following details of the medical branch of that force:

The Lord General's Train	2 Physicians	each at 6s. 8d. a day
	2 Apothecaries	each at 3s. 4d. a day
	2 Surgeons	each at 4s. 0d. a day
Regiment of Foot	1 Surgeon	at 4s. 0d. a day
	(2 Mates)	
General of Horse	1 Surgeon	at 4s. 0d. a day
Troop of Horse	1 Surgeon	at 2s. 6d. a day
Train of Artillery	1 Surgeon	at 4s. 0d. a day
	1 Servant	at 1s. 0d. a day

When we compare this establishment with that for the force intended for service with the Elector of the Palatinate, it will be seen that the general outline is the same, nevertheless, there are several important changes. In the first place the pay of the senior surgeons has been standardized at four shillings a day. This was to the disadvantage of the surgeons of the Train, but the senior Surgeon of the Ordnance benefited to the extent of two shillings a day, and was no longer known by the somewhat invidious title of barber surgeon. He

also had only one assistant, who was merely called his servant. This title was probably commensurate with that worthy's qualifications, for although his pay was double that of his predecessors, it was still only a shilling a day, which implies that he was a man of no professional standing. It will be noticed that the interesting experiment of having a surgical staff for camp duties was not repeated.

The most significant change in the medical establishment is in the infantry regiments. Although this change is not indicated in the paper preserved in the Rushworth Collection, we know from another source (CSPD, 1639-40, p. 594) that the company surgeons had been abolished, and had been replaced by regimental surgeons mates. How many of these officers were allotted to each regiment during this campaign is uncertain, but the document states that in the Second Bishops war the number was two, and infers that this was the number of mates allowed to a regiment during the First Bishops war.

This was not the first time that regimental surgeons mates had been employed in the English army. In the expedition under Count Mansfield in 1624, each regiment had a master surgeon and three assistants (APC, 1623-5, p. 396), but it would appear that the regiment also had its quota of company surgeons (APC, 1623-5, p. 427). If such was the case, it was the establishment of 1620 all over again, but upon an even more generous scale. In 1627, however, when five regiments were raised for the expedition to the island of Ré, the Privy Council sanctioned the employment of the following officers for each of these units—a chaplain, a provost-marshal, a quartermaster, and a surgeon. The Council appears to have been uncertain how much they should pay these officers, and requested the Lord Treasurer and the Chancellor of the Exchequer to ascertain what had been the remuneration of these ranks in earlier expeditions. These two officials duly reported, and in regard to the regimental surgeon said, that previously he had received five shillings a day, but as there was now only one surgeon sanctioned for each regiment, he must have three servants to assist him. The Council agreed to this suggestion, and decided, that over and above his own pay, the regimental surgeon should be allowed two shillings and sixpence a day for each of his assistants (APC, 1627-8, p. 175).

1627, therefore, is a very important date in the history of the medical service of the English army, because it was in this year that the infantry company surgeon ceased to exist, and his place was taken by new junior regimental officers, shortly to be called surgeons mates. This important change in the medical establishment of the infantry regiment was to continue in force, practically unchanged, for over two hundred years.

The observations in the last paragraph do not apply to Ireland, where the company surgeon lingered on for many years. Neither did it apply to the cavalry, which continued to have troop surgeons for a number of years; but, in 1642, at the outbreak of the Civil War, regimental surgeons were also appointed in this branch of the service, and from that time troop surgeons also ceased to exist in the English army.

Besides the temporary armies raised for continental expeditions, there were small permanent garrisons in one or two places within the kingdom. In an earlier paper, I referred to the garrison of Berwick, but, during the sixteenth century, there was no indication that this, or any other garrison, had a surgeon on its establishment. The first record of a garrison surgeon is in February 1627. In the Acts of the Privy Council for that year, there is a list of the garrison of the Scilly Isles. From this we learn that it possessed a surgeon; and that his pay was one shilling a day, which was the same as that of the two serjeants and the drummer. The private soldiers, who numbered 81, received eightpence a day per man; and there were also a dozen gunners at tenpence a day (APC, 1627, p. 63). From these facts it is obvious that the garrison consisted of one company, and that the surgeon ranked as a company surgeon, and received the old established pay of that rank.

In July of the same year there is a similar list for the garrison of the Isle of Jersey. This consisted of a double company under the command of a captain, with a lieutenant and an ensign to assist him. The strength was two hundred rank and file, with double the number of non-commissioned found in an ordinary company. There were, therefore, two surgeons, and each of them received the normal pay of a shilling a day (APC, 1627, p. 439).

It would appear that there was always a garrison at Berwick, but there is no evidence that it normally had a surgeon. In 1640, however, at the time of the second Bishops War, both a physician and a surgeon were appointed to that station; doubtless on account of an increase in the strength of the garrison. The pay of these medical officers is not mentioned, but it was laid down that they should be given "the like entertainment as in the army," which presumably was six shillings and eightpence for the physician, and four shillings for the surgeon (CSPD, 1639-40, p. 576).

At least during one period, on account of a sudden influx of casualties from the Continent, it became necessary to engage a number of surgeons at very short notice. This was on November 20, 1627, when the news reached London that the wounded from Buckingham's army had been landed on the south coast. The company of Surgeons received immediate instructions from Sir Edward Conway to send five or six good surgeons at once to Portsmouth, with the necessary drugs and equipment to treat these wounded men (CSPD, 1627-8, p. 442). The Company took prompt action, and on the same day selected some of their most distinguished members for this work. These included Woodall, one of the wardens of the company. He was the author of several well-known surgical textbooks, principal surgeon to the East India Company, and was the man who had been mainly responsible for recruiting the surgeons for this expedition. Another of the surgeons who went to Portsmouth was Peter Thorney, who, in the following year, was appointed Surgeon-General of the Expeditionary Force that was sent to Rochelle (S. Young, *Annals of the Barber Surgeons*, 1890, p. 334).

On November 22 Conway wrote to inform the Duke of Buckingham that

these six surgeons had been *imprest*, and asked that the Duke should decide how many of them should go to Portsmouth and Plymouth respectively (CSPD, 1627-8, p. 444).

I have placed the word *imprest* in italics, because I believe that the word is here being used to indicate that these distinguished members of the Surgeons Company received an imprest, or advance of pay, when they were appointed for this duty. There is no indication that they had been pressed or forced into this service.

It would appear that they remained at Portsmouth till about December 2, because on that date Captain Mason records that he had handed over a sum of money to the surgeons sent from London, to cover the expenses of the sick and wounded men, who were being removed to the capital, for further treatment in the hospitals of Saint Thomas and Saint Bartholomew (CSPD, 1627-8, p. 455).

We have next to consider how the surgeons for the army were recruited during this period, and we shall find that they were pressed in the same rigorous way as was done in the previous century. It will be recollected that in the sixteenth century, the responsibility for recruiting surgeons was sometimes delegated to the officials of the Barber Surgeons Company, and at other times to the officers of the regiments who were in need of surgeons. This practice was continued in the seventeenth century. In December 1624 the Master and Wardens of the Company were ordered by the Privy Council to press and take up

“sixe sufficient master chirurgians with three servantes apiece to serve under them in the exercise of chirurgerie, to goe along with the sixe regiments of foote to serve under Count Mansfield, to every regiment one, and these parties to be at Dover by the twenty fourth of this moneth, to goe along with the troupes from thence” (APC, 1623-5, p. 396).

So much for the regimental medical officers for this force: but it would appear that the company surgeons were recruited by the company commanders. My reason for saying this is that in January of the following year the Privy Council complained to the colonels of the regiments, that

“diverse of your captains have contracted with sundry of the surgeons, and there-upon discharged them, regarding more their private ends than His Majesty’s service” (APC, 1623-5, p. 427).

These remarks of the Privy Council show that the ethical standard of company commanders had not improved since the days of Queen Elizabeth, and that they were still as eager as ever to line their own pockets at the expense of both the Crown and the private soldier.

In February 1625 the Company of Barber Surgeons was called upon to press a number of company surgeons for service in Ireland (APC, 1623-5, pp. 485-6). But in August of the same year warrants were given to ten colonels to impress the surgeons required for their regiments (APC, 1625-6, p. 127).

Therefore within a period of twelve months, the Company of Surgeons and the regimental officers were both twice authorized to recruit surgeons for military service. So it went on throughout the period, sometimes it was the colonels of the regiments who were empowered to recruit his own surgeons, and at other times this was done by the Surgeons Company.

The results of these methods of recruitment were sometimes curious, and often unfair. In 1625 William Goodridge of New Sarum was pressed for service as a military surgeon; and, if there is any truth the certificate issued by the Mayor and Justices of that town, nobody less suitable could have been selected for the job. They said that Goodridge was about 60 years old, that he suffered from gout and stone, and was not sufficiently skilled in surgery to serve in the King's service (CSPD, 1625-6, p. 97). Goodridge was an alderman and ex-mayor of New Sarum, so it is possible that his brother magistrates, in trying to assist him, were none too accurate in their statements, but, even so, one can hardly believe that they would have gone so far as to disparage his professional ability.

A curious effect of this method of recruiting surgeons occurred in 1627. The Mayor and Commonality of Plymouth petitioned the Privy Council for the exemption of Frederick Christian and John Davies from military service so long as they should be employed as surgeons for the town and the hospital at Plymouth. The grounds for this petition were that there was a shortage of surgeons in the town on account of the recent expedition to Cadiz, and the late high mortality in the town (CSPD, 1627-8, p. 143). Presumably the mortality had hit the surgeons severely, but the main trouble was that surgeons were frightened of setting up in practice there, because Plymouth was the place from which so many expeditions sailed, and captains of ships and colonels of regiments took the last opportunity, while at this place, of making up their complement of medical officers by conscripting the local practitioners.

Goodridge and the two surgeons of Plymouth had no influential patrons to help them, otherwise their position might have been much happier. William Giddens pressed by the Master and Wardens of the Barber Surgeons Company in 1627 had such a friend in the Earl Rivers. That peer took action on his behalf, and the Privy Council wrote to the Surgeons Company ordering them to release Giddens from the press, because he was a servant of that nobleman

"who is aged and hath daily occasion to use the service of the said Giddens in some matter concerning his bodily health which can not well be performed by any other" (APC, 1626-7, p. 318).

It is necessary to add a few observations on the subject of pay. We have seen that by the end of the period this had been standardized at 6s. 8d. a day for physicians, 4s. for surgeons, and 3s. 4d. for apothecaries. But this was by no means the whole of their salaries: these officers were also in receipt of other sums.

In 1640, three physicians, Drs. Denton, Sheafe and Caddeman were engaged

Secondly from this it may be concluded that the human body, at least in European countries and the U.S.A., possesses considerable "native resistance" to tuberculosis and that it is only when this resistance is low, or the initial dose of bacilli large, that noticeable constitutional changes follow the primary infection.

Although this may be silent, it nearly always produces changes in the tissues which causes them to develop a hypersensitivity towards any subsequent dose of tubercle bacilli or certain products derived from them. In addition an acquired resistance is built up which enhances the native resistance and increases the powers of the tissues to overcome the toxic effect of the tubercle bacilli and to suppress their reproduction.

Advantage has been taken of this production of hypersensitivity to demonstrate the presence of any infection by means of the various skin tests; and of this increased resistance to the bacillus and its toxins to produce, and now use, a vaccine, consisting of a strain of tubercle bacilli of low virulence, for the production of a controlled primary focus and the consequent improvement of resistance, without the danger which attends natural exposure to infection by unknown quantities of bacilli. The vaccine used for this purpose consists of an attenuated strain of bovine tubercle bacilli known as the *Bacillus Calmette-Guérin*, or BCG.

The procedure for this vaccination with BCG is by no means simple, although the actual inoculation may be so. Careful testing of each individual with appropriate local tests has to be arranged; the vaccine has, at present, to be obtained from abroad and has to be used within *fourteen days* of manufacture; reading of both tests and vaccination have to be done by trained personnel and a practised eye; records have to be detailed and comprehensive; re-testing has to be carried out at yearly or bi-yearly intervals and also recorded; and finally these processes are time-consuming at a stage in the individual's service when every hour has its allotted function in the training programme.

Nevertheless, in view of the relative safety offered to those most liable to grave risk of infection, this recent introduction of BCG vaccination is one more stimulating example of the practice of preventive hygiene in the Services and is fully justified.

From the variety of local skin tests available the Mantoux test has been selected as being most reliable and most suited to Service needs. A description of the performance of the test is not required here (details are given in the circular); but it is emphasized that an *intra-dermal* injection of 0.1 ml. of a dilution of 1:10,000 tuberculin (one unit International Standard of Old Tuberculin) is given and a positive result consists of a raised area having induration of not less than 6 mm. in diameter. If negative the test is to be repeated using 0.1 ml. of a 1:100 dilution tuberculin (100 International Standard units). Recording will give the area of induration thus:

Mantoux—one unit—positive—10 mm.

The vaccination technique, to be given only to those who do not react as positive to the test, is similar in that 0.1 ml. of the material is injected

intradermally over a specific site. In successful cases a local reaction develops at the site in from three to six weeks consisting of a small papule slowly increasing in size, changing to a shallow, painless ulcer which heals in from eight to ten weeks without malaise or interference with training. Recording is to be done on a special card (provided in duplicate) for addition eventually to the documents of the individual. The record will show as follows:

Local reaction—(size in mm.)

None—papule—macule—vesicle—infiltration—ulcer—glandular enlargement—abscess.

The material to be used is a special standard suspension of the vaccine obtained by the Ministry of Health from the Serum Institute at Copenhagen. Extreme care needs to be exercised in its preparation and administration to ensure accurate dosage and absence of all contamination. Unfortunately it is also unstable and preparations must be used within forty-eight hours of receipt in military establishments. This means that vaccinations must be arranged to a set programme which must not be disrupted by other less important matters.

While testing and vaccination are being carried out it is important that the individual should be kept free from the risks of infection and therefore he or she is not available for duty with tuberculous patients for six weeks or even more.

Conversion from Mantoux negative to positive takes some six weeks and the individual is subjected to a further test to confirm this, the results being duly recorded in the appropriate documents; and annual or bi-annual retests are subsequently needed.

BCG vaccination, similarly to other protective measures, cannot be regarded as giving complete protection from future infection nor does it protect against infection acquired shortly before the vaccination. It is, however, a great advance in our protective armamentaria and there will be few who are at definite risk in the nursing of or attention to active cases who will not readily accept this measure.

One definite drawback is of course the time factor during training when every hour is allocated, but this disadvantage has been made easier for the harassed T.O. and his staff by a carefully prepared time-table included in the instructions and issued for their guidance.

In this present announcement, then, we have a very real advance in preventive medicine in the Service. May the protection afforded prove of the utmost value to those who are at greatest risk and who adopt this newly offered vaccination with BCG.

Historical

**THE ENGLISH MILITARY SURGEON
1603 - 1641**

BY

Colonel DAVID STEWART
Late Royal Army Medical Corps

JAMES VI and I was an extremely stupid man, but he did his country this service, that he kept it out of wars for a long period. His reasons for doing this may often have been foolish ones, but the result was that commercial life was able to develop without the interruptions of foreign wars and the country grew steadily wealthier. His son Charles at first reversed his father's policy, but his campaigns were so badly conceived and so poorly executed that they left him extremely short of money; and for the next ten years of his reign he made no further attempts to achieve military distinction. England from 1603 and 1639, with few interruptions enjoyed a period of peace, and little occurred that is of interest to the general military historian, but his medical brother is more fortunate, because several alterations were made in the status of the medical officers which were of fundamental importance in the future development of the medical service of the army.

In an earlier paper (*JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, 88, 231-47) I have described the condition of the medical officers in the army in Ireland, the one permanent army that England possessed during the sixteenth century. This force continued to exist during the period that we are now discussing, but its strength was radically reduced. Regiments disappeared and the army in Ireland came once more to consist of a number of independent companies. There were no regimental surgeons and not even all the companies were entitled to have surgeons. These officers were confined to foot companies only, and, by 1610, troops of horse and garrisons of castles had no surgeons on their establishment (*CSPI*, 1608-10, pp. 508-10).

During the reign of James I the company surgeons in Ireland continued to draw their old rate of pay of one shilling a day; but, in 1628, the reign of Charles I, an extraordinary alteration was made in the wages of the company non-commissioned officers, including the surgeons; instead of receiving one shilling a day, as they had done for many years, their pay was suddenly cut to ninepence, while that of the private soldier was reduced to sixpence (*CSPI*, 1625-32, p. 342). How it was thought to be possible to obtain professional men

of any attainments for this miserable pittance it is difficult to imagine; nevertheless this rate of pay continued up to at least December 6, 1641 (CSPI, 1633-47, p. 765), and possibly for longer.

In my earlier paper I mentioned that William Kelly was for many years principal surgeon in Ireland, and that after his death in 1597 he was succeeded by Walter Newton. Newton was no longer in office in 1607, for in that year the position of surgeon to the State—as it was now called—was held by Edmond Cullon (CSPI, 1608-10, pp. 79 and 507), who still retained it in 1615 (CSPI, 1615-25, p. 11). In 1623 James Weaver was surgeon to the State (CSPI, 1615-25, p. 406).

Somewhere about 1625 the name of Dickson appears in the list of captains as Chief Surgeon in Ireland at a salary of 6s. 8d. a day (CSPI, 1625-32, p. 172). It is possible that this was a new appointment designed to give the soldiers better surgical treatment than they had previously received, but I am of the opinion that this is improbable. I am more inclined to believe that it was found to be impossible to get a man with adequate qualifications to take the appointment of surgeon to the State at the salary of two shillings a day, and that it became necessary to make a new appointment with a higher rate of pay, to attract a properly qualified surgeon to treat the civil officials should they require surgical attention.

I pointed out in my earlier paper, that, after the death of Dr. Turner, the stipend of the physician to the State in Ireland was given to the Master and Fellows of Trinity College, Dublin. This arrangement can only have lasted for a few years, because, in 1610, Dr. Metcalfe's name appears as physician to the State (CSPI, 1608-10, p. 507). He held that appointment until his death in 1633. At the time of his death he was a wealthy man; he left two children, a daughter who had married but "meanly," and a son of weak intellect. Unfortunately he had made no will, and his children were not in a position to look after their own interests. This gave the unscrupulous Lord Chancellor of Ireland an opportunity of laying his claws upon the estate and he appointed one of his gang of toadies as administrator, to rob the children of Metcalfe of their patrimony (CSPI, 1633-47, pp. 9, 14, 101, 192-3).

Let us now leave Ireland and its impoverished ragtime army, and return to England to see how military affairs were being managed in that country. As in the previous reign, there was except for a few weak garrisons no permanent army. When war broke out a force had to be raised and troops recruited in a hurry. In 1620 James resolved to go to war in support of the Elector of the Palatinate, and decided to do this in a big way by raising a force of over 30,000 men. As frequently happened with this monarch, this grandiose scheme was more than his financial resources would allow, and ultimately, all that he was able to send overseas was a paltry force of some 2,000 men.

Notwithstanding the fact that it never materialized, the authorized establishment for the proposed army is of considerable interest. It indicates the strength of the medical service that was then considered to be necessary for a

large force. Furthermore this establishment was to be the pattern, with certain modification, of the medical service of the army during the whole of Civil War.

The force of 30,000 men was made up of 25,000 infantry, 5,000 cavalry, and an unspecified number of artillerymen and pioneers; and for this force the following medical establishment was authorized:

The General's Train	2 Physicians	each at 6s. 8d. a day
	2 Apothecaries	each at 3s. 4d. a day
	2 Surgeons	each at 6s. 8d. a day
Infantry Regiment	1 Chief Surgeon	at 4s. 0d. a day
	12 Surgeons (1 per company of 150 men)	each at 1s. 0d. a day
General of Horse	1 Chief Surgeon	at 4s. 0d. a day
Troop of Horse of 100 men	1 Surgeon	at 2s. 6d. a day
Ordnance and Pioneers	1 Barber Surgeon	at 2s. 0d. a day
	2 Under Barber Surgeons	each at 0s. 6d. a day
The Camp	1 Surgeon Major	at 5s. 0d. a day
	2 Mates	each at 4s. 0d. a day

(H. A. L. Howell, *JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, 2, 738)

It will be observed that here we have a regular hierarchy of medical officers, with the two physicians to the train at the top, descending to the two under barber surgeons of the Ordnance at the bottom. It would be necessary to go back to 1482, to the army of the Duke of Gloucester, to find a medical establishment that would compare in any way to this in gradation of ranks.

The number of medical men attached to the train of the general appears to be very generous for the small number of men that they must have had under their care. Yet this part of the establishment remained unaltered for many years, and one wonders whether or not these officers did not have some administrative control over the rest of the medical officers of the army. Unfortunately there is no evidence which would shed any light on this matter. The presence of apothecaries with the army is an innovation. Although there had been casual references earlier to members of this branch of the medical profession being associated with the army, this is the first occasion on which they appear in an official establishment. This probably arose from the fact, that James, in 1617, with an unexpected sagacity, and against considerable opposition, split the apothecaries off from the Grocers Company and incorporated them as a separate company called the Society of Apothecaries.

The regiments were given an allotment of surgeons that appears to be more than generous. An attempt was made to combine the old company system with the new regimental one, of which we saw the first rudiments in the last years of the reign of Queen Elizabeth. This combination of company and regimental medical officers was probably only used once, in 1624, and for the very good reason, that it was far too extravagant in medical officers.

It is interesting to see that the medical officers of the ordnance are called barber surgeons. Up to the time of their union by Henry VIII, there had been

two companies of surgeons in England, one was the Surgeons Guild, and the other the Company of Barbers. Prior to this union it had been the custom to refer to the members of the guild as surgeons, and to those of the company as barber surgeons. After the union these distinctive names gradually dropped out of use and the surgical members of the united company were known simply as surgeons. One can only suggest that it is used in this establishment to describe a man who was not so well qualified as those in the other branches of the army. Undoubtedly this would appear to be the correct explanation in regard to the junior medical officers of the ordnance, because one would hardly expect to find men with any qualifications being content with sixpence a day, the pay of a common soldier.

The appointment of a staff of surgeons for camp duty was an innovation and was not repeated. The title of surgeon's mate for the junior officers of this department is, as far as I know, the first time that this rank occurs in the army. It was to remain in use right up to the end of the eighteenth century as the title of the assistants of the regimental officer. These junior regimental medical officers were only warrant officers, and the surgeons' mates of the camp, judging by their rate of pay, must have been equivalent to commissioned officers.

Finally, it will be seen that the regimental system was confined to the infantry; the cavalry still consisted of independent troops, each with its own troop surgeon. These officers were much better off financially than their opposite numbers in the infantry; but it must be remembered that they probably had to provide and maintain their own horses.

The next establishment of which we have a record is that for the army for the first Bishops War of 1639. This is preserved in a document in Rushworth's "Historical Collections," II, pp. 1046-50, which gives a detailed account of the constitution of the English army in this campaign. From this I have extracted the following details of the medical branch of that force:

The Lord General's Train	2 Physicians	each at 6s. 8d. a day
	2 Apothecaries	each at 3s. 4d. a day
	2 Surgeons	each at 4s. 0d. a day
Regiment of Foot	1 Surgeon	at 4s. 0d. a day
	(2 Mates)	
General of Horse	1 Surgeon	at 4s. 0d. a day
Troop of Horse	1 Surgeon	at 2s. 6d. a day
Train of Artillery	1 Surgeon	at 4s. 0d. a day
	1 Servant	at 1s. 0d. a day

When we compare this establishment with that for the force intended for service with the Elector of the Palatinate, it will be seen that the general outline is the same, nevertheless, there are several important changes. In the first place the pay of the senior surgeons has been standardized at four shillings a day. This was to the disadvantage of the surgeons of the Train, but the senior Surgeon of the Ordnance benefited to the extent of two shillings a day, and was no longer known by the somewhat invidious title of barber surgeon. He

also had only one assistant, who was merely called his servant. This title was probably commensurate with that worthy's qualifications, for although his pay was double that of his predecessors, it was still only a shilling a day, which implies that he was a man of no professional standing. It will be noticed that the interesting experiment of having a surgical staff for camp duties was not repeated.

The most significant change in the medical establishment is in the infantry regiments. Although this change is not indicated in the paper preserved in the Rushworth Collection, we know from another source (CSPD, 1639-40, p. 594) that the company surgeons had been abolished, and had been replaced by regimental surgeons mates. How many of these officers were allotted to each regiment during this campaign is uncertain, but the document states that in the Second Bishops war the number was two, and infers that this was the number of mates allowed to a regiment during the First Bishops war.

This was not the first time that regimental surgeons mates had been employed in the English army. In the expedition under Count Mansfield in 1624, each regiment had a master surgeon and three assistants (APC, 1623-5, p. 396), but it would appear that the regiment also had its quota of company surgeons (APC, 1623-5, p. 427). If such was the case, it was the establishment of 1620 all over again, but upon an even more generous scale. In 1627, however, when five regiments were raised for the expedition to the island of Ré, the Privy Council sanctioned the employment of the following officers for each of these units—a chaplain, a provost-marshal, a quartermaster, and a surgeon. The Council appears to have been uncertain how much they should pay these officers, and requested the Lord Treasurer and the Chancellor of the Exchequer to ascertain what had been the remuneration of these ranks in earlier expeditions. These two officials duly reported, and in regard to the regimental surgeon, said, that previously he had received five shillings a day, but as there was now only one surgeon sanctioned for each regiment, he must have three servants to assist him. The Council agreed to this suggestion, and decided, that over and above his own pay, the regimental surgeon should be allowed two shillings and sixpence a day for each of his assistants (APC, 1627-8, p. 175).

1627, therefore, is a very important date in the history of the medical service of the English army, because it was in this year that the infantry company surgeon ceased to exist, and his place was taken by new junior regimental officers, shortly to be called surgeons mates. This important change in the medical establishment of the infantry regiment was to continue in force, practically unchanged, for over two hundred years.

The observations in the last paragraph do not apply to Ireland, where the company surgeon lingered on for many years. Neither did it apply to the cavalry, which continued to have troop surgeons for a number of years; but, in 1642, at the outbreak of the Civil War, regimental surgeons were also appointed in this branch of the service, and from that time troop surgeons also ceased to exist in the English army.

Besides the temporary armies raised for continental expeditions, there were small permanent garrisons in one or two places within the kingdom. In an earlier paper, I referred to the garrison of Berwick, but, during the sixteenth century, there was no indication that this, or any other garrison, had a surgeon on its establishment. The first record of a garrison surgeon is in February 1627. In the Acts of the Privy Council for that year, there is a list of the garrison of the Scilly Isles. From this we learn that it possessed a surgeon; and that his pay was one shilling a day, which was the same as that of the two serjeants and the drummer. The private soldiers, who numbered 81, received eightpence a day per man; and there were also a dozen gunners at tenpence a day (APC, 1627, p. 63). From these facts it is obvious that the garrison consisted of one company, and that the surgeon ranked as a company surgeon, and received the old established pay of that rank.

In July of the same year there is a similar list for the garrison of the Isle of Jersey. This consisted of a double company under the command of a captain, with a lieutenant and an ensign to assist him. The strength was two hundred rank and file, with double the number of non-commissioned found in an ordinary company. There were, therefore, two surgeons, and each of them received the normal pay of a shilling a day (APC, 1627, p. 439).

It would appear that there was always a garrison at Berwick, but there is no evidence that it normally had a surgeon. In 1640, however, at the time of the second Bishops War, both a physician and a surgeon were appointed to that station; doubtless on account of an increase in the strength of the garrison. The pay of these medical officers is not mentioned, but it was laid down that they should be given "the like entertainment as in the army," which presumably was six shillings and eightpence for the physician, and four shillings for the surgeon (CSPD, 1639-40, p. 576).

At least during one period, on account of a sudden influx of casualties from the Continent, it became necessary to engage a number of surgeons at very short notice. This was on November 20, 1627, when the news reached London that the wounded from Buckingham's army had been landed on the south coast. The company of Surgeons received immediate instructions from Sir Edward Conway to send five or six good surgeons at once to Portsmouth, with the necessary drugs and equipment to treat these wounded men (CSPD, 1627-8, p. 442). The Company took prompt action, and on the same day selected some of their most distinguished members for this work. These included Woodall, one of the wardens of the company. He was the author of several well-known surgical textbooks, principal surgeon to the East India Company, and was the man who had been mainly responsible for recruiting the surgeons for this expedition. Another of the surgeons who went to Portsmouth was Peter Thorney, who, in the following year, was appointed Surgeon-General of the Expeditionary Force that was sent to Rochelle (S. Young, *Annals of the Barber Surgeons*, 1890, p. 334).

On November 22 Conway wrote to inform the Duke of Buckingham that

these six surgeons had been *imprest*, and asked that the Duke should decide how many of them should go to Portsmouth and Plymouth respectively (CSPD, 1627-8, p. 444).

I have placed the word *imprest* in italics, because I believe that the word is here being used to indicate that these distinguished members of the Surgeons Company received an *imprest*, or advance of pay, when they were appointed for this duty. There is no indication that they had been pressed or forced into this service.

It would appear that they remained at Portsmouth till about December 2, because on that date Captain Mason records that he had handed over a sum of money to the surgeons sent from London, to cover the expenses of the sick and wounded men, who were being removed to the capital, for further treatment in the hospitals of Saint Thomas and Saint Bartholomew (CSPD, 1627-8, p. 455).

We have next to consider how the surgeons for the army were recruited during this period, and we shall find that they were pressed in the same rigorous way as was done in the previous century. It will be recollected that in the sixteenth century, the responsibility for recruiting surgeons was sometimes delegated to the officials of the Barber Surgeons Company, and at other times to the officers of the regiments who were in need of surgeons. This practice was continued in the seventeenth century. In December 1624 the Master and Wardens of the Company were ordered by the Privy Council to press and take up

"sixe sufficient master chirurgians with three servantes apiece to serve under them in the exercise of chirurgerie, to goe along with the sixe regimentes of foote to serve under Count Mansfield, to every regiment one, and these parties to be at Dover by the twenty fourth of this moneth, to goe along with the troupes from thence" (APC, 1623-5, p. 396).

So much for the regimental medical officers for this force: but it would appear that the company surgeons were recruited by the company commanders. My reason for saying this is that in January of the following year the Privy Council complained to the colonels of the regiments, that

"diverse of your captains have contracted with sundry of the surgeons, and there-upon discharged them, regarding more their private ends than His Majesty's service" (APC, 1623-5, p. 427).

These remarks of the Privy Council show that the ethical standard of company commanders had not improved since the days of Queen Elizabeth, and that they were still as eager as ever to line their own pockets at the expense of both the Crown and the private soldier.

In February 1625 the Company of Barber Surgeons was called upon to press a number of company surgeons for service in Ireland (APC, 1623-5, pp. 485-6). But in August of the same year warrants were given to ten colonels to impress the surgeons required for their regiments (APC, 1625-6, p. 127).

Therefore within a period of twelve months, the Company of Surgeons and the regimental officers were both twice authorized to recruit surgeons for military service. So it went on throughout the period, sometimes it was the colonels of the regiments who were empowered to recruit his own surgeons, and at other times this was done by the Surgeons Company.

The results of these methods of recruitment were sometimes curious, and often unfair. In 1625 William Goodridge of New Sarum was pressed for service as a military surgeon; and, if there is any truth the certificate issued by the Mayor and Justices of that town, nobody less suitable could have been selected for the job. They said that Goodridge was about 60 years old, that he suffered from gout and stone, and was not sufficiently skilled in surgery to serve in the King's service (CSPD, 1625-6, p. 97). Goodridge was an alderman and ex-mayor of New Sarum, so it is possible that his brother magistrates, in trying to assist him, were none too accurate in their statements, but, even so, one can hardly believe that they would have gone so far as to disparage his professional ability.

A curious effect of this method of recruiting surgeons occurred in 1627. The Mayor and Commonality of Plymouth petitioned the Privy Council for the exemption of Frederick Christian and John Davies from military service so long as they should be employed as surgeons for the town and the hospital at Plymouth. The grounds for this petition were that there was a shortage of surgeons in the town on account of the recent expedition to Cadiz, and the late high mortality in the town (CSPD, 1627-8, p. 143). Presumably the mortality had hit the surgeons severely, but the main trouble was that surgeons were frightened of setting up in practice there, because Plymouth was the place from which so many expeditions sailed, and captains of ships and colonels of regiments took the last opportunity, while at this place, of making up their complement of medical officers by conscripting the local practitioners.

Goodridge and the two surgeons of Plymouth had no influential patrons to help them, otherwise their position might have been much happier. William Giddens pressed by the Master and Wardens of the Barber Surgeons Company in 1627 had such a friend in the Earl Rivers. That peer took action on his behalf, and the Privy Council wrote to the Surgeons Company ordering them to release Giddens from the press, because he was a servant of that nobleman

"who is aged and hath daily occasion to use the service of the said Giddens in some matter concerning his bodily health which can not well be performed by any other" (APC, 1626-7, p. 318).

It is necessary to add a few observations on the subject of pay. We have seen that by the end of the period this had been standardized at 6s. 8d. a day for physicians, 4s. for surgeons, and 3s. 4d. for apothecaries. But this was by no means the whole of their salaries; these officers were also in receipt of other sums.

In 1640, three physicians, Drs. Denton, Sheafe and Caddeman were engaged

to serve in the army, and over and above their pay they each received a lump sum of £150; which, when one considers the value of money in those days, appears to have been a fairly generous allowance. However, these officers thought differently, for they complained that this grant was too small, and asked for more. The Council of War discussed the matter, and decided to leave it to the General of the Army, to give the doctors an increase if he thought that their services deserved it (CSPD, 1640, p. 459). There is no evidence as to what the General decided, but it is known that Dr. Caddeman, in 1641, got a warrant for £160 from the General, and Dr. Denton was also trying to get one for £100 (CSPD, 1640-1, p. 546). Whether Caddeman ever managed to cash his warrant is another matter; for he had to deal with a couple of sharks in Sir William Uvedale, the Treasurer at War, and his assistant Matthew Bradley. These two worthies were busy misappropriating as much as they could of the money that had been set aside for the prosecution of the war.

The surgeons also had sources of income other than their pay. In the reign of Queen Elizabeth the scheme of giving the surgeon twopence a month for every soldier under his care was introduced. This money was stopped from the pay of the individual soldier, and was given to the surgeon to enable him to provide drugs and dressings. In 1627, while he still continued to draw his twopences, he was also given a sum of £30 by the government for this purpose, £25 for the supply of drugs, and £5 for linen (APC, 1627, p. 275). This payment of 1627 became a precedent, and afterwards it became the practice to give the regimental surgeon an allowance to enable him to furnish his chest. The actual sum varied from time to time.

As to the apothecaries, there is no evidence to show that they received any money over and above their pay of 3s. 4d. a day. But there is little doubt that the apothecaries on military service supplied the medical stores that were required by the army, and made their usual commercial profit on these transactions. This was certainly the custom during the Civil War, and was probably also the practice at this period. The apothecaries were not conscripted, and a salary of 3s. 4d. a day would have been of little inducement to them to volunteer to serve in the army unless there had been an opportunity to augment it in some way.

In my earlier paper on the medical officers of the English Army in the sixteenth century, it was pointed out that the number of physicians provided for the army was always quite inadequate to deal with the vast number of sick that invariably occurred on active service. It was suggested, very tentatively, that possibly the surgeons treated medical cases as well as surgical ones. At the same time it mentioned, that during that century there is no evidence to support this hypothesis.

In the earlier part of the seventeenth century the situation is rather different. John Woodall in the preface in his book entitled "Military and Domestic Surgery," published in 1639, strongly advocated that military and naval surgeons should be allowed to treat medical cases, because, frequently, they

were so situated that it was impossible for them to consult a physician or even an apothecary, and must of necessity treat these diseases themselves. From this it is clear that it was coming to be appreciated that military surgeons should be allowed to extend their practice, and doubtless they frequently did so.

In regard to status, the physician still maintained his pre-eminence as a man of culture and a gentleman, and the position of the surgeon was improving; the introduction of the rank of regimental surgeon, with greater pay, attracted men with better qualifications. They do not appear to have been graded as commissioned officers, but that was coming and in the Civil War this important alteration was made, which resulted in a great advance in the social standing of the army surgeon.

As in the earlier paper I have included in an appendix a list of all the army medical officers of this period whose names I have been able to find.

- ADNEY, CLODII'S (1640) Surgeon to Sir J. Douglas's Regiment (Rushworth, II, pp. 1243-52).
- AUSTIN, JOHN (1640) Surgeon to Sir Jacob Ashley's Regiment (Rushworth, II, pp. 1243-52).
- BARKER, HENRY (1640) Surgeon to Sir William Ogle's Regiment (Rushworth, II, pp. 1243-52).
- BENNETT, ——— (1640) Surgeon to Sir Charles Vavasor's Regiment (Rushworth, II, pp. 1243-52).
- CADYMAN, JOHN. Also spelt Cademan. He was a London physician and M.D. of Bonn. He was admitted an extra-licentiate of the College of Physicians of London on May 1, 1640. On June 22, 1640, was recommended by the college for the appointment to the office of physician to the army (Munk's Role, I, p. 228). He received the appointment (CSPD, 1640, p. 459).
- COQUINX, ANTHONY (1640) Surgeon to Lord Conway's Regiment (Rushworth, II, pp. 1243-52).
- CULLEN, EDMOND, Also spelt Cullon. In 1607 was surgeon to the State in Ireland, and was still in office on February 8, 1615 (CSPD, 1608-10, pp. 79 and 507; 1615-25, p. 11).
- DENTON, WILLIAM. Youngest son of Sir Thomas Denton, Hidsen, Bucks. He was educated at Magdalen Hall, Oxford, M.D. October 10, 1634. In 1640 was a physician to the army (Munk, I, pp. 127-8 and CSPD, 1640, p. 459).
- DICKSON, ——— November 6, 1622, Chief Surgeon of the Army in Ireland (CSPI, 1625-32, p. 172).
- EARNLESSE, JOHN. Surgeon to Viscount Grandison's Regiment (Rushworth, II, pp. 1243-52).
- HALES, EDWARD (1640) Surgeon to Henry Wentworth's Regiment (Rushworth, II, pp. 1243-52).
- LANGLEY, TRINITY (1640) Surgeon to William Vavasor's Regiment (Rushworth, II, pp. 1243-52). Served with Parliamentary armies in the Civil War.
- LOWE, LAWRENCE (1640) Surgeon to the Captain General's Regiments (Rushworth, II, pp. 1243-52). Was senior surgeon to the Parliamentary army in early stages of the Civil War.
- METCALFE, ——— Was physician to the State in Ireland in 1610, and held this appointment until his death in 1633. He left a large estate, and was survived by a son and a daughter (CSPD, 1608-10, p. 507; 1615-25, p. 11; 1633-47, p. 9).
- MOORE, ——— (1627) Physician to the Island of Ré expedition, and personal physician to the Duke of Buckingham (CSPD, 1627-8, p. 400).
- OXENBRIDGE, CHARLES (1640) Surgeon to the Earl of Barrimore's Regiment (Rushworth, II, pp. 1243-52).

- PALMER, ——— (1640) Surgeon to Sir Thomas Glenham's Regiment (Rushworth, II, pp. 1243–52).
- PRIEST, WALTER (1627) Surgeon to the Duke of Buckingham, Island of Ré expedition. He died after his return to England, left a widow, Abigail, and two children in reduced circumstances (CSPD, 1628–9, p. 90).
- RAYNE, GEORGE. An old army surgeon; in 1615 had difficulties in obtaining a pension from the City of Norwich (APC, 1615–6, p. 237).
- SHEAFE, ——— (1640) Physician to the Army (CSPD, 1640, p. 457).
- SMITH, RICHARD (1640) Surgeon to the Marquis of Hamilton's Regiment (Rushworth II, pp. 1243–52).
- THORNEY, PETER, July 8, 1628, appointed surgeon-general to the Rochelle expedition (Young, p. 334).
- WEAVER, JAMES. In April 1623 was surgeon to the State in Ireland (CSPI, 1615–25, p. 406).
- WOODALL, JOHN. The well-known surgical author. Born about 1569, son of Richard Woodall of Warwick. Served in France as surgeon to Lord Willoughby's Regiment in 1591, later lived abroad. Returned to England, and was admitted to the Barber Surgeons' Company in 1599. Appointed warden of the company in 1627, and master in 1633. Spent some time in Holland and Poland. He was appointed surgeon to St. Bartholomew's Hospital in 1616 and was also principal surgeon to the East India Company; he held the latter position for nearly thirty years, and was in office at the time of his death in 1643. He was survived by his wife, Sarah Henchpole, three sons and one daughter. Most of the responsibility for the recruitment of surgeons for the Army and the Navy during the wars at the beginning of the reign of Charles I was delegated to him by the Surgeons Company (Norman Moore, D.N.B., lixii, pp. 282–3; J. Jenkinson, *Journal of the Royal Naval Medical Service*, 26, 107–9).

KEY TO REFERENCES

APC —Acts of the Privy Council.

CSPD—Calendar of State Papers; Domestic.

CSPI —Calendar of State-Papers; Ireland.

SIR JAMES McGRIGOR SOME NOTES AND CORRESPONDENCE

By Kind Permission of D. G. McGRIGOR, Esq.

My Grandfather described his experience in the disastrous Walcheren campaign in which he succeeded Sir John Webb as Chief Medical Officer. That he acquitted himself well is proved by the words quoted from the despatch from Sir Eyre Coote the Younger to Lord Castlereagh: "The attention of the Medical Officers under the able superintendence of Mr. McGrigor, Inspector of Hospitals, has been most unremitting and praiseworthy."

Sir James, while in charge of the medical supervision of the South-Western District, had to deal with the troopers returning from Corunna, carrying fever with them wherever they went. So appalling was the state of affairs that he

declared it insurmountable, yet he did surmount it. The words occurring in the *Royal Army Medical Journal* on this episode in his life are as follows:

"McGrigor's powers shone out in coping with an emergency which would have daunted many another man, and his reputation grew as the foundation on which it was based became better known." On June 13, 1811, he was appointed Physician to the Portsmouth garrison, a sinecure position which he held till death. According to Kinglake the salary was £200 per annum. It was 9s. per day.

In a dispatch dated Grenada, October 3, 1811, the Duke of Wellington asked that, to replace Dr. James Franks who was ill, he should have "the most active and intelligent person that can be found to fill his place." Sir James arrived at Lisbon on January 10, 1812.

That Sir James added still further to his great reputation during the war is a matter of history, and here Napier's words on one great proof of his worth may well be quoted: "During the ten months from the siege of Burgos to the battle of Vittoria the total number of sick and wounded who passed through the hospitals was 95,348. By unremitting attention of Sir James McGrigor and the medical staff under his orders, the army took the field preparatory to the battle with a sick list under 5,000. For twenty successive days it marched towards the enemy and, in less than one month after it had defeated him, mustered, within thirty men, as strong as before, and this, too, without reinforcements from England, the ranks having been recruited by convalescents." ("Peninsular War," revised edition, vol. IV.) Napier gave it as his opinion that the extraordinary exertions of the medical officers of the Army might be said to have decided the day at Vittoria, for their exertions had undoubtedly added a full division to the strength of Lord Wellington's army and without those 4,000 or 5,000 men, it is more than doubtful if his Lordship, with all his unrivalled talents, could have carried the day.

For commandeering transport for the sick and wounded Sir James was violently reprimanded by the Duke, but when he did the same thing again he was highly commended!! In repeating this ("offence") Sir James dared more than most men would have dared where Wellington was concerned. But not only did he dare to repeat the offence, but he also reminded Wellington of his rebuke on the former occasion! An Officer of the Royal Army Medical Service, the late Colonel Melville, told me that Sir James is said to be the only man who stood up to the Duke. Note also the "dressing down" he administered when a Regimental Surgeon to his Commanding Officer, the future Marshal Beresford (as to whom see "The Complete Peerage"), afterwards his lifelong friend. In the Autobiography are several instances of the Duke's friendship to him from Peninsular days to old age.

At the siege of Badajoz Sir James was at the Duke's side, and in the Autobiography describes the scene and the expression on Wellington's face. Both in the *JOURNAL OF THE R.A.M.C.*—in which it is described as a masterly piece of writing—and in A. H. Miller's "The Sweep of the Sword," and in H. F. B. Wheeler's "The Story of Wellington" this account is mentioned.

The following is a copy of a letter written by Sir James shortly after that arèadful affair in which he aided in the rescue of the French Governor's daughters from some drunken soldiers of his former Regiment:

"Badajoz, 8th April, 1812.

My Dear Colonel,

Tho' as usual you owe me an epistolary debt I take up my pen, and under the circumstances I am in, in this horrible scene of carnage, you stand a worse chance of getting a legible scrawl than ever.

The Gazette will give you an account of our feats here: I know not whether John But will be delighted or not:—(the following words are scratched out—but I think he pays dearly for this town, strong as it is), but nothing will keep out our people; when Philippon breakfasted with his Lordship this morning after the engagement he expressed as much. He is a very able man; the Second in Command, the Commandant of Artillery, and Chief Engincer Hill say so. The Garrison was chosen men; I saw about 3,000 of them march out, and I know not that I ever saw as many of ours look better. Being with his Lordship the whole time the business went on, I saw everything and heard everything, and most interesting it was. I had been twice besieged, but never before was of the besieging party. At one time, and when the account came that our people had been repulsed from the two breaches, it was an awful moment. The number of my own friends killed and wounded is very great. You remember poor who was General Whetham's Aide de camp; it is only five minutes ago that I have seen him, and only in time to see him expire. He begged hard to see me, and when he found I did not appear, left a message and request that I would see him put underground and write his wife—no pleasant task. In preparation for this and in making my account, my duty has been extremely harassing and I had got a little more genteel in my make than I was.

During the time the thing lasted, about five hours, Lord Wellington was extremely anxious to know the number of men that were wounded (?) at the different posts, and I went from one to the other and occasionally informed him. When the thing was over I told him what I believe the actual number, *he really cried*. I have every reason to be satisfied with him, and my position at headquarters. His family is one of the most pleasant as well as first-rate kind, the Prince of Orange, Lord Fitzroy Somerset, Lord Clinton, Colonel Bowen, Lord Russel. [Sic.]

Of Colquhoun¹ I hear frequently tho' I have not seen him, as on the 3d he was then in front of Ciudad Radrigo watching Marmont, well and in spirits.

Everything is due to General Kemet for the taking of this place: he is far the best General with this army at present and, but for him I doubt if we would have got (in at all). General Walker, who I fear is mortally wounded, was ? at one time, and so was one of the heros. [Sic.]

As I unable to write more letters at the present moment, you must communicate this to Mary and to the family.

I never was better in health.

Remember me most affectionately to them all and more particularly to poor Mary (his wife), I hope that she and you went to Edinburgh by carriage

Ever with affectionate (regards?)

My Dear Colonel

Sincerely Yours,

J. McGrigor."

Addressed to Lt.-Colonel Grant, 70th Regt., Stirling Castle [N.B., Sir James' Brother-in-law].

¹Colquhoun was the celebrated Head of the Intelligence Department.

In Colonel Gurwood's book of Wellington's Despatches will be found the following letter to Sir James dated from Flores de Avila, July 28, 1812, 2 p.m. from Wellington:

"I have received your letter of yesterday at noon, and I am very much obliged to you for the good account you have given me of our wounded. I assure you that I am very sensible of the diligence and attention of the medical department of which I have reported my sense to the Secretary of State."

On August 31, in the same year, Sir James wrote to Lord Lynedoch as follows:

"My Dear Sir,

I assure you the result of the consultation, and the account which you give yourself of your health, diffused a great deal of satisfaction here. Lord Wellington says he will be-and-by write you himself, but in the meantime he desires me to say that when it was communicated to him that Sir Edward Paget was coming out here as second in command, he desired that they would make him distinctly understand that the instant you were able to resume your situation, no other person could fill it, and that he still confidently looked forward to the prospect of getting you back again."

This letter appears in A. M. Delavoye's "Life of Lord Lynedoch" (Richardson, London, 1880), as from "Dr. McGrigor, H.M.O. in Peninsular," and on page 635 (unindexed) is, I think I am correct in saying, a letter from Lynedoch to Wellington on the subject of the former's eyesight in which Sir James is mentioned.

In the JOURNAL OF THE R.A.M.C. occur these words: Altogether the picture of medical affairs in the later phases of the Peninsular War is one a medical officer likes to dwell on: a capable Chief, in intimate relations with, and possessing the entire confidence of the supreme Commander, with a body of officers devoted to him and to their work, eager and able to second him to the full in his endeavours to promote the fighting efficiency of the Army. That much of the success was due to the personality of McGrigor cannot be gainsaid.

Baron Percy of the French Army occupied, during the Peninsular War, much the same position as Sir James. To him some of the success of the "Ambulances Volantes" was due as well as to Baron Larrey, Napoleon's Chief Medical Officer. In a series of articles on the history of the Red Cross which appeared in the *Red Cross Journal* the strangely inaccurate statement was made that, till the Founder of that Society got to work, there was no means of removing the wounded from the battlefield till fighting was over! I therefore wrote a letter which appeared in the same Journal pointing out by quotations from my Grandfather's Autobiography and "The Memoir of Baron Larrey," a translation—by my Father, I believe—from the French (Henry Renshaw, 356, Strand, 1861), the utter fallacy of the above assertion. This work is dedicated by the translator of the Officers of the Royal Army Medical Corps.

In a letter dated London, July 26, 1814, the Duke writes:

"I have the honour to transmit to you a memorial from Dr. McGrigor, Inspector of Hospitals, which I beg you to lay before his Royal Highness the Commander-in-Chief with my request that the claims of that Officer may be favourably considered. I have every reason to be satisfied with the manner in which Mr. McGrigor conducted the

department under his directions, and I consider him one of the most industrious, able, and successful public servants I have ever met with."

In the JOURNAL OF THE R.A.M.C. the following words on Sir James' appointment to the position of Director-General are of great interest: "For the first time an Officer in the prime of life, of proved ability, with unrivalled experience and definite ideas of reform, was to preside over the medical service of the Army, an Officer who was in every way identified with the interests of that service, who had given it the best years of his life, knew it by heart, and commanded in a degree hitherto unequalled the trust of those who belonged to it. McGrigor accepted the position not without misgivings, it is true, but with the quiet confidence born of complete knowledge."

Pettigrew testified in his work already referred to that, under Sir James, the qualifications for entry into the medical service of the Army exceeded those required by the Colleges of Physicians and Surgeons, and my Father used to tell me that members of Parliament—men of considerably greater social position at that time on the whole than the present M.P.s—used to beg him to consider favourably the appointment to the Army Medical Department of their relations, so high was its status under Sir James.

On his first attempt to retire from the Director-Generalship, the Duke of Wellington answered him: "No, no, Mac, there is plenty of work in you yet."

On his retirement in 1850, the tributes to the esteem in which he was held were most gratifying. They are to be found on pages 391 to 393 in the Supplementary chapter of the Autobiography.

In the article on the celebrated Surgeon, George James Guthrie, F.R.S., in Pettigrew's book (vol. 4), there are several references to Sir James. On page 8 we read that Guthrie "proposed to Sir James McGrigor the formation of an Infirmary for Diseases of the Eye." They got the help of the Dukes of York and Wellington, General Lord Lynedoch and others, and they were the originators of the Royal Westminster Ophthalmic Hospital.

Not only was Sir James to a great extent a prime mover in the establishment of this hospital, but the late Colonel Melville of the Army Medical Service said to me that it owed its splendid buildings at Millbank to him.

EXCERPTS FROM LETTERS FROM SIR JAMES McGRIGOR TO HIS SONS

Each of these Being Numbered

27 November, 1839. You must excuse me, dear Charles, for adverting to one thing, and it regards your letters. They, since your departure, have not been written either in style or in the character of the handwriting like the letters of a gentleman, much less than those of a man of business. In Paris you can obtain good ink, pens, pen-knives, etc. and so (?) and never write your letters in a hurry, and read each of them twice over before you despatch them.

Pardon me once more, my Dear Charles, for repeating that you should read over every letter you receive *twice* before you reply to it, and then paragraph by paragraph, always commencing your letter by acknowledging date of letter received. By the irregularity in this you puzzle us much as to which of our letters you received. Although we received several letters from you, hardly one of the whole was a reply to any letter we wrote, as none of them adverted to any one paragraph of any letter we wrote you.

Only think what would be thought of such neglect in a letter of business. Again some of your letters are dated in a different month from which . . . they were written.

One thing more altho' it may to you appear of little importance is really of great importance, the folding and addressing your letter they are put up and carelessly sealed in the way John¹ writes to the Cook and the Cook writes John, in short they are not in the manner of a gentleman. All the above, my Dear Son, is easily done, and I trust that in future you will do it . . . as any gentleman does.

I am sure, My Dear Charles, you have too much good sense to be offended at my having said this much, for as your Father it is my bounden duty to point out to you anything in which you are deficient or behind others of your age; indeed I am quite sure you will not take it amiss.

You will much oblige me, Charles, by reading this letter *twice* over and with attention.

Your Mother and sister send their affectionate loves to you; in writing mention the same to them for I am sure you feel an affectionate love for them; why then be ashamed of expressing it?

I ever am,
My Dear Son,
Your truly most affectionate Father
(Sd) J McGrigor.

¹I think John was the Butler.

4th January, 1840.

I am much obliged by your last which is by far the best written letter which I have received from you since we parted in July; it is likewise properly folded and sealed like the letter from a gentleman.

I was further much gratified two days ago, on calling on Mr. Lawrie, when he showed me with pleasure in his eye, your letter to him saying, "Charles has certainly improved in one way already; look at this: now this is written with care, and is likewise a concise well-written letter of a man, and it shews what he *can* do when he chooses." He then shewed me a printed paper with blanks filled up by you, and sent to General Sanders, and said, "What a pity he will not take care and read everything carefully, for if he had carefully read the printed instructions on this paper he could not have made the mistakes for which it was sent back." Again he said, "See how Charlie's letter is folded up like a letter from a gentleman, but usually the letters he puts up look as if he had crushed each of them in his hand. I am quite sure we will have Charles much improved in everything else as well as in letter writing, but it is of more importance to me as well as himself as a man of business that he was accomplished in this. He has so many fine traits in his character, and I like him much."

Mr. Lawrie is right; you have, my Dear Charles, 50 amiable points in your character, and few young men have a more amiable character, none are more free from vice and everything dishonourable.

You have to

- 1st accomplish yourself in writing;
- 2 in speaking slowly, clearly, and distinctly;
- 3 To hear advice patiently, and thankfully, not petulantly and with irritation, and peevishly;
- 4 to keep a strict guard on your temper;
- 5 and lastly, to avoid argumentation, particularly in politics, never to press an argument but to have tact to finish the moment you become unpleasant, and that moment to stop.

Later on my grandfather rebukes his son for making no inquiry after a Colonel MacGregor as to whom "you have no more sincere friend," and another, perhaps the Colonel's daughter.

This letter ends thus: Your Mother sends her affectionate love to you, and I most

urgently request, my Dear Charles, that in writing me you never fail to mention your kind Mother to whom you owe so much in the same terms of regard and affection.

May the Almighty bless and preserve you, my Dear Charles.

31 August 1839.

I wish your next letter to be addressed to your sister, and pay postage.

Your dear Mother and sister send their affectionate regards; always send yours in the same proper terms to them.

13 December, 1839.

You are . . . expected to appear at the Board of the Insurance Office where you have been elected a Director . . . Speak slowly and distinctly, write well, and always be in good humour.

Do not leave Paris in a bustle, take leave of all your friends there, pack up, and come leisurely away taking some little present for your Mother and Sister, perhaps a handsome Cambric handkerchief for each.

I hope you called on Baron Larrey¹ and on his son.

30 August, 1839.

Always commence your letters by saying where and when you wrote last, and then say what letters you have received and reply to the last, and I beg you not to write in a hurry, but devote one hour to leisurely writing. In your first tell us all your plan of movement and do not leave Dresden some days after you have announced it to me as a letter is 10 days in travelling from Dresden.

I hope you have not been late for any of the diligences.

Beware of the acquaintances you make.

On the same paper are letters from his Mother and Sister. His Mother writes: We wish to send our *Love* to you, dear Charles, and do not fail to send *Love* to us in return, for Jane and myself nor even uncle and aunts . . . don't think "kind remembrance" familiar enough for the intimate footing we like to be upon with you.

His Sister writes:

"I think it is now high time I had a letter from you." She also writes that Miss Wilkie—was she any connexion of my Grandfather's friend Sir David, the great Artist? "hopes you will not fail to bring over some of Strauss's last waltzes which she thinks are worth going to Germany to fetch."

Be it noted that his sister ends her letter with mere "kind remembrances" from her father and mother, for using which words her brother is rebuked above!

The following are excerpts from my Grandfather's letter to his younger son:

16 May, 1835.

By the blessing of a kind Providence you have now arrived at a time of life at which it has become necessary that you fix on that occupation by which you may be enrolled to earn your bread in passing through this world. On this subject I have spoken seriously to you at different times of late years, and I cannot with justice to yourself, and to prevent after reproach, delay longer in calling upon you to decide. I do so

¹ Baron Larrey was to Napoleon's army as was Sir James to Wellington's.

particularly at this moment because an opportunity now offers for a most respectable line of life which may never again occur. It is that of Civil Engineer, and under a celebrated man, Mr. Stevenson of Edinburgh. If this suits you, I should know soon as some preliminary and University education is necessary to obtaining eminence in it. I beg therefore that you will immediately give your serious attention to this proposal, and enable me to reply to Mr. Stevenson. Perhaps nothing so eligible may again occur. There must not now be much longer delay in fixing on an occupation, for you see my health rapidly declining, and I am most anxious to see you settled before I leave this world. [But my Grandfather did not die till the year 1858].

25th May, 1838.

I cannot let another post pass without saying how much, my dear boy, I am satisfied with your decision about the examination. More (?), I am confident you will find friends in court. Do not there flurry yourself, and give a *deliberate* and slow answer to any question asked of you. Use the short intermediate time to the examination, but be careful not to overdo the thing, and so knock yourself up.

I wish from my heart, my Dearest Walter, I could get you to take a manly resolution to the rule which I recommended and stick firmly to the perseverance in it: not to be out of bed after 10 o'clock at night while at Cambridge, and to be out of bed by 6 o'clock by your watch . . .

26th May.

take a ten minutes' walk till your room is made, then read till the chapel hour, and take breakfast on your return. After breakfast keep your door shut for three hours reading, and then walk or make calls till the dinner hour, but do not make late calls after dinner, and be in bed by 10 o'clock.

My dear Walter, if I appeared harsh or spoke hastily to you any time during my late visit I am heartily sorry for it, but I can crave you to bear with me for I am now far advanced in the vale of years, and I daily feel the importunities of age growing fast upon me, and that my tenure of this life is but (a word omitted?) may the Almighty prepare me for that which is to come.

Of one thing rest assured; my affection and regard for you is as warm as ever entered a parent's heart for a beloved child, and it was that warmth and interest which I feel in your welfare which induced me to speak in warm or perhaps harsh terms to you.

I dine to-day with Lord Bute. I wish to make him and as many of my friends as I can friends to you in your views on the church [The last word is, I think, church.]

Write a day or two after the examination has commenced, and I will be satisfied whatever the result may be, my Dear Boy, and most happy to see you here. Do not be over anxious about it, keep yourself possessed, answer slowly and clearly to every question put to you, and never hastily nor till after thought and turning it over in your mind.

When you do your best, be careless about the result being conscious you have done all you could, and do not stand in awe of any of the Examiners.

May the Almighty bless, protect, and preserve you.

9th December, '36.

I hope you will quit Cambridge tolerably free from debt, and that you have kept your book of accounts regularly. Bring that home with you, as likewise your bills and receipts. . . .

At this time it is absolutely necessary that you come to a decision and fix on that profession by which you can earn your bread thro' life. Longer delay in justice to yourself cannot be allowed, as your education must be shaped to your profession, and likewise in order that I may begin (?) to use all my influence with my friends in order to forward you. Time should not be lost for my health is frail, and my tenure of life uncertain, and if you were to apply to these friends when I am dead, I fear that not a few would turn their backs on you, forgetting me, and not recognizing my son.

May the Almighty bless and protect you.

Clinical and Other Notes

A CASE OF ENTEROGENOUS CYANOSIS

BY

Lieut.-Colonel JOHN MACKAY-DICK, M.B., Ch.B., F.R.C.P.Edin.

Royal Army Medical Corps

From a British Military Hospital, B.A.O.R.

The patient was a soldier, aged 21 years, serving one year's imprisonment for absence. He was always in and out of hospital with vague symptomatology of some sort, and in August 1946, when I was posted to 25 (Munster) B.M.H., sure enough he was there as large as life, in the Detention Ward in which he had been previously. However, to get back to the Detention Ward, Antwerp, where he was admitted on October 6, 1949, his sentence commenced in August 1945 and he stated that the staff were "always thinking that he was trying to dodge something."

On admission at 1530 hours he was deeply cyanosed—a greyish-blue colour. I have never seen such gross and generalized cyanosis in my life before. T. 98.6° F. P. 74. R.22.

He was not distressed and showed no evidence of respiratory embarrassment. He was well orientated mentally and answered questions intelligently and well, but he was very guarded in his answers to questions relating to the possible consumption of poison. He stated that it was possible that somebody else had "put something in his food." However, as several other medical officers had previous experience of generalized benign cyanosis in soldiers undergoing detention and immediately diagnosed the case as being the result of ingesting some form of metal polish his story was taken with a pinch of salt. He had not had access to any drugs.

He had no complaints except a sensation of nausea and listlessness and did not feel like eating anything.

General examination revealed no abnormality of cardiovascular or respiratory systems except a lowered systolic and diastolic B.P. (B.P. 102/58). In the absence of physical findings a provisional diagnosis of sulph-hæmoglobinæmia or methæmoglobinæmia was made, and the diagnosis of the latter was subsequently confirmed by spectroscopic examination of a sample of venous blood. Examination of the urine revealed no abnormality and the result of a blood count was as follows: R.B.C. 4,670,000/c.mm.; Hb 99 per cent; Total W.B.C. 9,400/c.mm. Differential count: Stab. polymorphs 2 per cent; segmented polymorphs 63 per cent; monocytes 8 per cent; lymphocytes 27 per cent.

In view of the possibility of suicidal tendencies a special orderly was provided. A diet rich in carbohydrates and fluids, together with ammonium chloride gr. xv four times daily, was prescribed.

On the evening of the day of admission he passed a large normal stool. Culture of this failed to reveal any significant flora such as the "nitrosobacillus."

During the night he slept well, and the orderly noticed nothing unusual in his behaviour or mental state.

By the morning (October 7, 1945) the cyanosis had faded markedly, and the normal colour was returning to the lips and mucous membranes. The B.P. was 110/60, and he had no complaints.

The following morning (October 8, 1945) the cyanosis had disappeared except for a faint blue tinge of the nail beds. B.P. 118/68. Later on the same day he was seen by Major Prentice, R.A.M.C. (Psychiatrist), who reported that the patient was not suffering from any gross psychiatric disability and although a dullard was responsible for his actions, and could manage his own affairs.

It was therefore considered that a special orderly was no longer necessary and that the patient would be fit for discharge in a few days. Complete recovery was on October 11, 1945. The patient was discharged. B.P. 120/78. He felt perfectly fit and had been able to carry out fairly strenuous duties in the ward without disability.

The literature to 1934 contained records of only about 40 cases of enterogenous cyanosis. Now that the sulphonamides are widely used the incidence is high (Whitby and Britton, "Disorders of the Blood," 4th Edition).

Suggested possible causes of this generalized and intense, greyish-blue and short-lived cyanosis of rapid onset and with little constitutional upset beyond nausea, profound lassitude and hypotension, were the ingestion of anti-gas ointment or bleaching powder from latrine buckets or Silvo, a metal polish. These suggestions were made to me by medical officers who had seen some of the 19 or so cases which are believed to have been observed in soldiers undergoing detention in B.L.A. In all such cases an extraneous cause should be sought.

It is not known whether or not the treatment adopted had anything to do with the rapid disappearance of the cyanosis in this case.

ACKNOWLEDGMENTS

Major-General Sir Edward Phillips, *K.B.E., C.B., D.S.O., M.C., D.M.S.* British Army of the Rhine, for permission to publish these notes. Major M. J. Pivawer, R.A.M.C. Pathologist, and Capt. (now Major) Donald Gregory, R.A.M.C., for their help with the case.

NOTES ON A VISIT TO THE INTERNATIONAL CONGRESS ON AMŒBIASIS

BY

Lieut.-Colonel W. H. HARGREAVES, *O.B.E., M.R.C.P.*

Royal Army Medical Corps

Medical Specialist, Q.A. Hospital, Millbank

This Congress was held in September 1950 under the patronage of the French Colonial Minister at Chatel-Guyon, a beautiful spa in Auvergne. The attendance numbered over three hundred, and seventeen countries were represented. Professor Chabrol from Paris was President of the Congress and among the Honorary Presidents were General Jamé, Director-General of the French Army Medical Services, and Sir Philip Manson-Bahr. The meetings were divided into biological, clinical, therapeutic, and public health sections on amœbiasis, and there was a further section dealing with other parasitic

conditions of the intestinal tract. Most of the contributions took the form of comprehensive reviews by French authorities, which reflected the widespread interest in amoebiasis which has been taken for many years by clinicians, parasitologists, and epidemiologists in France and in French colonial territories, where the disease is one of great importance. In Indochina, where prior to the 1939-45 war public health measures had greatly reduced its incidence, amoebic dysentery is now a major problem; 27,211 cases were notified during 1948, and this figure was undoubtedly far short of the actual number. Amoebiasis is also endemic in the African colonies, particularly Morocco, and in Madagascar.

In the section on therapeutics, considerable interest was shown in a paper by Crosnier (Paris) on his experiences with *conessine* in the treatment of amoebiasis. Conessine is an alkaloid which is derived from *Holarrhena floribunda*, a shrub allied to kurchi, the ancient Indian remedy for dysentery. The amoebicidal action of this drug is less than that of emetine, but it is used in larger doses and it is given by the mouth in the treatment of intestinal and hepatic amoebiasis. Although he held that conessine was the drug of choice in acute amoebiasis Crosnier found it necessary to follow it with other amoebicides in a prolonged course of treatment lasting many weeks. In the subsequent discussion various opinions were expressed as to the toxicity of the drug. Blood dyscrasias have occurred, also nervous manifestations such as insomnia, nightmares, tremors, vertigo and sweating. Blanc and Siguier (Paris) gave a review of the treatment of amoebiasis. Since 1945 they have treated 200 cases of chronic amoebic dysentery with penicillin and sulpha-guanidine combined with emetine. The immediate results were very good, but since only 50 per cent of their cases were permanently cured by this treatment they now follow it up with arsenicals and diodoquine. They report very encouraging early results with aureomycin. Conan (Beirut), who was the first to use *chloroquine* in hepatic amoebiasis in America, read a short but important paper in which he described further successes with this drug. It is to be hoped that before very long chloroquine will be available in the sterling area. Deschiens (Paris) discussed the biology of the amoeba in its relation to amoebiasis. For many years Deschiens has emphasized the important part played by the intestinal bacteria associated with the amoeba, and this point was also stressed by Rees (U.S.A.). Rees holds out hope of a more dependable complement-fixation test for amoebiasis using antigens from cultures of *E. histolytica* with a strepto-bacillus, organism *t*, inhibited by penicillin, and with *Trypanosoma cruzi* in the absence of bacteria.

Lavier (Paris) reported on his study of *hepatic distomiasis* in France, where watercress is a popular article of food. Most cases were infected in the Loire area, where wild cress is eaten. In Paris, the annual consumption of watercress amounts to some 10,000 tons, but this cress is cultured with no chance of contamination by the snails which are the intermediate hosts of the liver fluke. During the stage of invasion of the liver by *Fasciola hepatica* a variety of clinical pictures may occur: febrile eosinophilia, eosinophilic hepatitis, pseudo-typhoid, or pseudo-septicæmia. A specific intradermal test

is available which is of diagnostic value at this stage. Later, when adult flukes are installed in the bile ducts, biliary colic and obstruction may occur, and ova can be found in the duodenal contents. Emetine has been found to be specific in the invasion stage but as yet there is no effective treatment for the established disease. *Ancylostomiasis* was found to be rife in the Moroccan phosphate mines in 1938, when 70 per cent of one group of miners were found to be infected with *Ancylostoma duodenale*. The painstaking investigation and successful control of this epidemic was described by Becmeur, Lafferre and Lamotte (Morocco). In their wide experience tetrachlorethylene has given the best therapeutic results.

H. H.

Book Review

THE RHESUS DANGER. ITS MEDICINE. MORAL AND LEGAL ASPECTS. By R. N. C. McCurdy, M.B., Ch.B., D.P.H. 1950. London: William Heinemann Medical Books Ltd. Pp. 138. Price 5s.

This paper-bound volume makes the problems incidental to sensitization to Rh easily accessible and understood. It is divided into two parts, the first medical, the second social in its outlook.

The Mendelian Laws of Inheritance are described and the evolution of our knowledge with regard to Rh group incompatibility traced in a clear and readily assimilable form. Those who have failed to grasp the subject from more highly technical works will welcome the smoother passage through this presentation.

The second part of the book is a fund of sound knowledge on the medical, ethical, legal and social aspects of contraception, sterilization and abortion. The laws relating to the adoption of children, artificial insemination and its possible legal complications are discussed at length and divorce laws are also mentioned.

The book is most readable, full of interest for physician and layman.

J. B.

Matters of Interest

THE NURSES WAR MEMORIAL WINDOW

HER MAJESTY THE QUEEN unveiled the Nurses War Memorial window in Westminster Abbey on Thursday, November 2, 1950. The Director-General was present. The War Memorial window is in the Islip Chapel and consists of the figures of St. Luke and the Virgin Mary, below which is the figure of a uniformed nurse, and included are the badges of the various nursing organizations, including the Queen Alexandra's Royal Army Nursing Corps.

The band of the Royal Army Medical Corps played in the Abbey on this occasion, and the Director-General complimented the Director of Music on the fine quality of the music.

REMEMBRANCE DAY

THE Director-General Army Medical Services and Lady Cantlie attended the Service held in Westminster Abbey on Remembrance Day, Sunday, November 12, 1950.

There were also present on this occasion Lieut.-General Sir William and Lady MacArthur and Major-General Mollan, Commandant of the R.A.M. College, and Mrs. Mollan.

After the Abbey Service had been held a wreath of poppies was laid in memory of all ranks of the R.A.M.C. who had fallen in both World Wars. The wreath was handed to the Director-General by Lieut.-Colonel J. G. Foster, R.A.M.C. (Retired), and was placed on the memorial tablet which is below the window dedicated to all ranks of the Corps who fell in both World Wars.

RECEPTION HORATIUS

At the conclusion of Exercise "HORATIUS" on January 15, 1950, there was a Reception at the Headquarter Mess at Millbank to which representatives of the North Atlantic Treaty Organisation and other distinguished guests were invited.

A most pleasant and cordial evening was spent. The Director-General and Lady Cantlie received the guests and the Orchestra of the Welsh Guards played during the evening.

Amongst others, the following were present—with, in many cases, their wives:

Medicin General Jame and Medicin Commandant Py (France); Major-General Wilkins and Lt.-Col. Dr. van der Vergt (Netherlands); Col. Medicin Mans and Lt.-Col. Wibin (Belgium); Medicin Major Felten (Luxembourg); Major-General Fasting-Hansen and Col. Hempel-Jorgensen (Denmark); General Ferri and Capt. Mazzarelli (Italy); Major-General Denit and Lt.-Col. Regan (U.S.A.).

Brigadier Wilmott (S. Africa); Lt.-Col. Sharif (Pakistan); Capt. Connors (Canada); Brigadier Harlock (Australia).

Mr. Michael Stewart, M.P., Lord Moran, Lord Webb Johnson, Sir Arthur Porritt, Dr. E. Boland, Dr. E. R. Cullinan, Countess Mountbatten of Burma, Countess of Limerick, Mrs. Bryans, Sir Hencage Ogilvie, Professor A. B. Wallace.

General Sir John Crocker, General Sir Ivor Thomas, Major-General Barber, Major-General Smith, Air Vice-Marshal Sir P. Livingstone, Surgeon Vice-Marshal Gresson, Air Commodore Hewat, Brigadier A. Thomson, Major-General Mitchener, Brigadier Urquhart.

Extracts from the "London Gazette"

PROMOTIONS

(1) *R.A.M.C.*

(a) To be Majors:

Captain T. C. R. Archer	24.10.50
Capt. (WS/Maj.) A. O. McClay (S.S.(Spec.))	26.9.50
Captain D. Gregory (S.S.Commnn.)	31.10.50

(b) To be Major (Q.M.) (S.S.Commn.):

Capt. (Q.M.) J. Creamer	27.6.50
Capt. (Q.M.) H. E. Crossman	28.11.50

(c) To be Captain:

Lieut. R. J. C. Hart (S.S.Commnn.)	13.11.50
------------------------------------	----------

APPOINTMENTS TO SHORT SERVICE COMMISSIONS

(1) *R.A.M.C.*

(a) From National Service List to be Lts.:

Lt. Herbert David Stephen Morgan	23.10.50
(retaining present seniority)	
Lt. Dudley Coulthard, M.B.	26.10.50
(retaining present seniority)	
Lt. Raymond Gathercole	26.10.50
(retaining present seniority)	

(b) To be Lieutenant:

Charles Harris, M.B.	22.10.50
----------------------	----------

RETIREMENTS

(1) *R.A.M.C.*

Lieut. (Q.M.) I. J. Fielding (S.S.Commnn.)	2.11.50
Major J. B. Evans (S.S.Commnn.)	29.11.50
Capt. C. S. Brewer (S.S.C. (A T))	14.11.50

PROMOTIONS

(1) *R.A.M.C.*

(a) To be Colonel:

Lt.-Col. P. J. L. Capon	11.11.50
-------------------------	----------

(b) To be Lt.-Col.:

Major J. Shields	11.11.50
------------------	----------

(c) To be Captain (S.S.Commnn.):

Lt. H. A. J. Reay, M.B.	23.10.50
(Subs. for notfn. in <i>L.G.</i> (Supp.) dated 31.10.50)	

(d) To be Capt. (Qr.-Mr.) S.S.Commnn.):

Lt. (Qr.-Mr.) E. J. Malone	6.12.50
----------------------------	---------

(2) *R.A.D.C.*

(a) To be Lt. (A. and T.):

2nd Lt. G. W. Cox

27.11.50

APPOINTMENTS TO SHORT SERVICE COMMISSIONS

(1) *R.A.M.C.*

(a) From Reg. Short Serv. Commn. Type "B" to be Capt.:

Captain Jan William Aalders

21.11.50

(retaining present seniority)

(b) From Nat. Serv. List to be Lts., retaining present seniority:

Lt. Charles Peter Boyland Parry

21.11.50

Lt. Henry Nisbet Richmond Wilson

21.11.50

(2) *R.A.D.C.*

(a) To be 2nd Lt. (Admin. and Tech.):

7536212 W.O. Cl. 1 George William Cox

27.11.50

RETIREMENTS

(1) *R.A.M.C.*

Major A. A. Grace

2.11.50

Major M. F. X. Slattery (disability)

10.11.50

Capt. (Qr.-Mr.) J. Thornton

2.11.50

*Obituary***Major HAROLD DUNMORE LANE**

ON July 7, 1950, Major Harold Dunmore Lane, *M.C.*, *R.A.M.C.*, Retired. Having taken the *M.R.C.S.* England and the *L.R.C.P.* London in 1914 he was commissioned Lieutenant *R.A.M.C.*, *T.F.*, October 12, the same year. Promoted Captain, April 1915, he was appointed to a regular commission in the same rank on June 1, 1918. He retired with the rank of Major receiving a gratuity August 11, 1923.

Between the wars he practised at Twickenham.

He rejoined on September 2, 1939, and was released owing to ill-health January 6, 1945.

He served in France from March 4, 1915, to the end of the war, being awarded the *M.C.* for conspicuous gallantry and devotion to duty. During a daylight raid on the enemy's trenches he established his aid post in the front line trench, and worked there for many hours under heavy artillery fire. He attended to the seriously wounded cases in the open, and was instrumental in bringing in all the wounded from No Man's Land and getting them successfully away. (*L.G.* October 8, 1917, and March 7, 1918). He was awarded a Bar to the *M.C.* for conspicuous gallantry and devotion to duty. On October 3, 1918, during an attack on Ramicourt and Wiancourt he, who

had already done magnificent work during the capture of Bellenglaise on September 29, 1918, and since that date had worked unceasingly under heavy fire, pushed forward through the enemy's barrage, and, although wounded, continued to search for and dress wounded under heavy shell and machine gun fire. By his absolute disregard of danger he set a splendid example to the men serving under him. (L.G. February 15, 1919, and July 30, 1919.) He was also awarded the 1914-15 Star, British War and Victory Medals.

During the 1939-45 war he was on trooping duty from September 1941 till January 1943, receiving the 1939-45 Star, Defence and War Medals.

Colonel LESLIE DUNBAR

At St. David's Lodge, Farnborough, Hants, on November 16, 1950, Colonel Leslie Dunbar, late R.A.M.C., Retired, *O.B.E.*, M.B. The younger son of the late Rev. John Dunbar, of Helm, near Meltham, Yorkshire, he was born July 13, 1887, and took the M.B. Leeds in 1912.

Commissioned Lieutenant R.A.M.C. on July 26, 1912, he was promoted Captain March 30, 1915, Brevet-Major June 3, 1917, Major July 26, 1924, Lieutenant-Colonel January 13, 1935, Colonel May 30, 1940, and retired December 22, 1946.

He served in Mesopotamia from September 18, 1915, till the end of the war 1914-18, earning well-deserved credit for his splendid work at the Base Isolation Hospital, Basra, in dealing with cholera and relapsing fever, and being three times mentioned and obtaining a Brevet Majority, the *O.B.E.*, British War and Victory Medals.

In the late war he served in India till June 1944, and received the Defence and War Medals.

Notices

ROYAL UNITED SERVICE INSTITUTION

WHITEHALL, S.W.1

LECTURE SESSION, 1951

Wednesday, at 3 p.m.

March 7: The Campaign in Malaya, Air Vice-Marshal Sir Francis Mellersh, *K.B.E.*, *A.F.C.*

March 21: Steel Supplies in War, Mr. Stanley W. Rawson.

TO ALL MEMBERS

THE sad death of Captain Edward Altham, *C.B.*, *R.N.*, is announced in the November issue of the Journal.

(1) The Council have filled the resulting vacancies in the appointment of:

(a) Secretary and Chief Executive Officer.

(b) Editor.

They invite applications for the post of Librarian.

(2) The Librarian is responsible, through the Secretary, to the Journal and Library Committee for the organization and management of the Library.

The tenant of the appointment is an Officer of the Institution and is required to take his turn as Duty Officer.

(3) The post carries a salary of £500 rising annually at £25 to a maximum of £650. The retiring age is 60, but the tenure can be extended year by year to 65 at the discretion of the Council.

(4) Applications giving particulars of age, rank and relative qualifications should be addressed to the Secretary. The closing date is February 20, 1951.

Members abroad may register by telegraph and forward their application by air mail.

Personal applications only will be considered, and lobbying will lead to disqualification.

By Order of the Council,

December 6, 1950.

P. S. M. WILKINSON, *Lieut.-Colonel,*
Secretary.

AUREOMYCIN PRODUCTION

THE Lederle Laboratories Division of Cyanamid Products Ltd. anticipate that in the near future supplies of Aureomycin will be available from production at a plant located at Hirwaun, South Wales, the erection of which by Cyanamid Products Ltd. is nearing completion. The plant will have a capacity sufficient to satisfy domestic demands as well as to provide for a considerable volume of exports which will bring much-needed foreign exchange to the U.K.

At the request of, and by arrangement with, the Ministry of Health, this plant will be confined to the purification of crude Aureomycin and the encapsulation and packaging of the refined product, and much help has been given to Cyanamid Products Ltd. by the Ministry of Health and the Board of Trade, particularly by the officials at Cardiff in the provision of a suitable site. Whilst the greater part of the equipment has been obtained in this country, permission has been granted for the importation of certain items of equipment not obtainable in this country, as well as certain equipment specially designed for this purpose by the Lederle Laboratories Division of the American Cyanamid Company.

Plans are being carefully studied by Cyanamid Products Ltd. with regard to the possibility of the erection of a further plant in this country in which the complete manufacture of this valuable antibiotic will be undertaken.

It is expected that the facilities now available will result in a much wider use of Aureomycin in those countries where heretofore its use has been restricted because of the shortage of dollar exchange required for the purchase of the finished product.

QUARRY HOUSE, ST. LEONARDS-ON-SEA
A LEAVE CENTRE FOR MEN AND BOYS OF THE SERVICES
A RECUPERATIVE HOLIDAY HOME FOR MEN

DEAR SIR,

I have pleasure in enclosing a copy of the Annual Report and Balance Sheet of Quarry House for the year ending September 30, 1950.

My Committee would be grateful if you could afford us space in THE JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, giving particulars of the amenities that Q.H. offers to Serving N.C.O.s, Men and Old Comrades of the Corps.

Our aim is to provide a Leave Centre for serving personnel and a Holiday Home for Old Comrades at the absolute minimum cost.

Q.H. is situated in the best part of St. Leonards overlooking the sea, and is within a penny bus ride of Hastings, the amenities that the House offers are good beds, good food, full size billiards table, games room with table tennis, library, rest room and lounges.

The charges are:

Boys under training (by arrangement with Officers Commanding) their ration allowance only.

N.C.O.s and Men 6s. per day Dormitory Rooms.

8s. 6d. per day Single Rooms.

Old Comrades 10s. per day Single Rooms.

Charges are inclusive of all meals.

We should be grateful for any donation, however small, to our funds to help us carry out our aims.

Yours sincerely,

D. F. TANKARD, Major, Warden.

ANNUAL REPORT 1950

His Majesty's Gift.—Again we acknowledge with deep gratitude H.M. The King's annual donation.

Death of Founder.—The Reverend Warwick Guy Pearse obit December 10, 1949. Founder of Quarry House and Warden for twenty-seven years.

He devoted his life to this work and many men who first came to the House as boys will remember him with gratitude and affection.

Change of Warden.—Major D. F. Tankard and his wife assumed duty in November 1949 as Warden and Assistant Warden. They have had considerable experience of this work and the improvements they have already instituted have been appreciatively commented on by both guests and visitors.

Finance.—The year's accounts show a deficit of nearly £900, which is partly due to the considerable expenditure on equipment for modernizing the kitchen quarters, a necessity long overdue and which will prove an

economy both in staff and fuel, and also to the closing of the House for some months during the change of Warden and to carry out the alterations to the kitchen.

Service men are charged a cost price, boys their ration allowance only, and we rely on grants from the King George's Fund for Sailors, the War Office and the R.A.F. Central Fund, and on the generous individuals who send us donations, in order to pay our way.

Guests.—The House was filled to capacity during the Service leave periods, but the number of guests between these periods has been disappointing. We are in touch with many Hospitals, Societies and Firms, and hope to receive more men for recuperation and rest after illness, a purpose for which the House is ideal.

H. S. ECERTON,
Commander, R.N. (Ret.).
Chairman.

XITH INTERNATIONAL DENTAL CONGRESS

FEDERATION DENTAIRE INTERNATIONALE

LOCALE FOR CONGRESS

WE are now able to inform you that the Organising Committee have secured, for the International Dental Congress to be held in London from July 19 to 26, 1952,

THE ROYAL FESTIVAL HALL

This hall is a spacious modern building of unique design, constructed for the Festival of Britain and it has its own special transport facilities linked up with the buses, underground and railways. Situated on the South Bank of the Thames with extensive promenades on the upper floors, it overlooks the river, providing a view of some of the most famous buildings of London. Lawns run down to the water and there is a spacious restaurant together with many other amenities that promise to provide for this Congress a background which will make it a memorable event in the history of International Dentistry.

Application Forms.—These forms are more or less self-explanatory, and may be obtained from the Hon. Secretary, 13, Hill Street, London, W.1.

JOURNALS RECEIVED

R.E. Journal, Med. Officer, Journal of American Med. Assoc., Nature, British Med. Journal, Journal of Med. Assoc. of Eire, Lancet, South African Med. Journal, Bulletin of Hygiene, Municipal Journal, Practitioner, Bulletin Johns Hopkins Hosp. and Supp., Journal of Path. and Bact., Med. Press, Med. Journal of Australia, July 8 and 15, Journal of Royal San. Institute, Indian Med. Gazette, Food Manufacture, British Journal Social Med., British Journal Radiology, British Journal of Ophthalmology, Journal of Bact., Journal of Thoracic Surgery, American Journal of Ophthalmology, Postgraduate Med. Journal, The Hospital.

Journal

OF

THE

Royal Army

Medical Corps

ISSUED

MONTHLY



EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		PAGE
ORIGINAL COMMUNICATIONS		Medical Aspects of Selection Procedure.	
Immunological Considerations in the Prevention of Diphtheria. By MOLLIE BARR, M.Sc., A.R.I.C., and A. T. GLENNY, F.R.S.	77	By Captain H. J. GROVES, R.A.M.C.	115
Some Reflections on the Organization of General Hospitals. By Colonel G. MOULSON, <i>Late</i> R.A.M.C.	92	The Unexpected. By Lieut-Colonel J. C. BARNETSON, <i>O.B.E.</i> , M.B., Ch.B.Ed., R.A.M.C.	126
Unusual Evidence of Early Hodgkin's Disease. By WILLIAM H. CROSBY, Major, Medical Corps, U.S. Army	98	Future Medical Officers for the Army. By Colonel R. H. ROBINSON, <i>T.D.</i>	130
The Promotion and Maintenance of Mental Health in the Military Community. By Major MARTIN M. LEWIS, M.B., Ch.B., D.P.H., D.T.M.&H., R.A.M.C.	102		
		AT RANDOM	
		R.M.O.	137
		CORRESPONDENCE	139
		REVIEWS	144
		OBITUARY	145



S T A P L E S P R E S S

STAPLES PRESS LIMITED STAPLES PRESS INCORPORATED
Mandeville Place, London 70 East 45th Street, New York

Price Three Shillings and Sixpence net

*In the
treatment of*

Bronchial Asthma

Neodrenal

Brand

ISOPRENALINE (isopropyl - nor - adrenaline)

**THE NEW, RAPID AND POTENT
BRONCHODILATOR. OFTEN EFFECTIVE
WHERE OTHER DRUGS HAVE FAILED**

Sublingual Therapy

Because of its convenience, sublingual administration is the method of choice. If taken promptly, at the onset of wheezing, an attack can usually be completely aborted.

Inhalation Therapy

In patients experiencing frequent paroxysms of severe asthma, "oral" inhalation is indicated. Seldom fails to give immediate relief from respiratory distress.

Literature and Samples on request

SAVORY & MOORE LTD.
WELBECK STREET, LONDON, W.1

Telephone :
WELbeck 5555 (20 lines)

Telegrams :
Instruments, Wesdo, London

When writing advertisers please mention "Journal of the R.A.M.C."

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

IMMUNOLOGICAL CONSIDERATIONS IN THE PREVENTION OF DIPHTHERIA

BY

MOLLIE BARR, M.Sc., A.R.I.C.,

AND

A. T. GLENNY, F.R.S.

The Wellcome Research Laboratories, Langley Court, Beckenham, Kent

BEFORE the days of extensive immunization against diphtheria, the majority of adults living in towns were actively immune ; their blood contained antitoxin and their cells were able to produce more antitoxin, probably within a few days of infection. Newborn babies were also immune, but theirs was a passive immunity transmitted from their mothers, and their cells were therefore not able to produce antitoxin rapidly. The passive immunity was gradually lost and active immunity could only be acquired by the haphazard and dangerous way of contact with living toxigenic organisms. Artificial immunization is neither haphazard nor dangerous, but it has reduced the duration of immunity by lessening the chances of natural immunization. In the past the many cases of diphtheria among young children caused subclinical infections in others, establishing active immunity in some previously non-immune and boosting titres of those already immune. There was some degree of truth in the idea then prevalent "once immune always immune." Since the advent of mass immunization we can now only say "once well immunized always potentially immune." Potential immunity does not necessarily include the presence of circulating antitoxin, but implies the ability to produce some antitoxin within a few days (usually five to ten) in response to stimulation by a boosting dose of prophylactic or by toxin produced as a result of infection. We are strongly of the opinion that circulating antitoxin as well as good potential immunity is necessary for complete protection against diphtheria.

Many people do not fully realize the changed immunity status of the population and its implications, although attention has been drawn to the matter in recent papers and correspondence. In this connexion we refer to a sentence from a paper by Hartley (1949). "The present position of almost assured protection can so deteriorate that, with an inadequately immunized juvenile population and an adult population in which immunity has declined, an extremely serious position may develop." A further comment by one of us (Barr, 1950) reads: "Any conclusions as to the suitability of the Schick-negative state as a criterion for safety against clinical diphtheria, can only have been drawn at a time when epidemics were occurring, and the antitoxic values of the population were receiving intermittent boosts and were actually considerably above the Schick level." Reference to the work of Dudley, May and O'Flynn (1934) shows the very high values that existed in a closed community in which diphtheria was endemic.

THE SCHICK LEVEL

The "Schick level" of circulating antitoxin was originally regarded as being 0.03 unit per ml., and persons who were Schick positive were assumed to have titres below this level and Schick-negative subjects to have higher titres. The evidence on this point was not very convincing. Several of the papers published were by workers who obviously had had little or no experience in testing antitoxic values, and frequently titrations were made on blood withdrawn seven days after the Schick test. Since the advent of more extensive and more precise titrations of antitoxic values in human sera it has been generally recognized that the Schick level is considerably lower than was originally supposed. Thus Dudley *et al.* (1934) concluded that the critical level was about 0.01 unit per ml. The general evidence available now shows that although a few persons with as little as 0.001 unit per ml. may fail to give a positive reaction and a few with 0.01 unit may react, the majority with 0.002 unit are Schick positive and the majority with 0.004 unit are negative. It is clear then that persons who are only just Schick negative have very low titres of circulating antitoxin: there are many persons with such titres today.

It is possible that different batches of toxin conforming to Schick's original definition varied so much in composition that greatly different levels of antitoxin have been detected by their use. The original definition was that a Schick dose contained one-fiftieth of a guinea-pig fatal dose of a matured toxin. A guinea-pig fatal dose is not an exact measurement, because guinea-pigs are far more susceptible to toxin in the winter than in the summer. "Matured toxin" is a vague term and may cover wide variation in toxoid content, affecting the amount of antitoxin needed to neutralize any dose fixed by reference to measurement of toxicity alone. The British definition of a Schick dose (recommended by The Wellcome Laboratories) is that it should be just neutralized by 0.001 unit of antitoxin, the toxin and antitoxin being mixed together and injected intracutaneously into a guinea-pig. The toxicity is defined between limits that ensure enough toxin to produce a good but not

excessive reaction in susceptible persons. A warning should be given against comparing figures for Schick positive or negative rates in other countries with those in Great Britain, because the British definition is not universally accepted: in the U.S.A. the dose is still defined solely in terms of toxicity and it is possible that the use of a dose in 0.1 ml. instead of 0.2 ml. (used in this country) may give a slightly different result.

The Schick test can only reveal the presence or absence of a small amount of antitoxin, without any indication of whether the individual has just passed the test or has a margin of 10, 100 or 1,000 times the minimum necessary amount of antitoxin. In any community the number of individuals negative to the test gives no indication as to their probable antitoxic values. Recent titrations on over 2,000 random samples, made by us in collaboration with various colleagues, have shown that a very large scatter of antitoxic values exists among the adult population. These values range from the lowest detectable level 0.001 unit to 20-50 units per ml., though values exceeding 5 units are comparatively rare. A Schick-negative person could therefore be expected to possess any antitoxic titre between 0.004 and 5 units per ml. or possibly higher. We are of the opinion that before artificial immunization became general, when the population relied upon natural infection to stimulate immunity, the great majority of Schick-negative persons had high titres of circulating antitoxin and most Schick-positive persons had none: in other words few persons were only just Schick negative. A different state of affairs prevails today. Recently published figures by Hartley and his colleagues (1950) show that considerable numbers among the child population of Tyneside and Dundee, though they had received courses of prophylactic injections, had titres round and only just above the Schick level 0.004 unit per ml. It appears from this report that of 199 cases of clinical diphtheria in immunized children in Dundee, nearly half had antitoxic values just above the Schick level (0.004, 0.01 and 0.02 unit per ml.) at the time of sampling. It is possible, however, that these titres were lower at the time at which infection actually occurred, and may have risen in response to toxin produced in the early stages of the disease before the blood samples were taken.

In the past it was generally thought that Schick-negative persons very seldom contracted diphtheria. The experiences in more recent epidemics both in this country and in Denmark and other European countries have shown that this is probably now untrue. At all events many "immunized" persons have contracted the disease, and although it is seldom or never fatal to them, severe cases have occurred among them (Hartley *et al.*, 1950). Parish and Wright (1938) thought the Schick level was too low "to ensure safety," and Hartley (1949) stated: "It is quite likely that it may be necessary to estimate higher antitoxic concentrations in human populations than that hitherto indicated by the Schick test." Such higher concentrations could be detected by an adjustment of the toxoid content of the test toxin without increasing its toxicity. It would be necessary to introduce some form of purified toxoid in order to avoid severe "non-specific" reactions.

THE SCHICK TEST AND THE PSEUDO-REACTION

The Schick test consists of the intradermal injection of 0.2 ml. of Schick toxin into the left forearm and 0.2 ml. of control fluid into the right forearm. The control fluid in use in this country is a portion of the same Schick toxin dilution which has been heated to 80° C. for half an hour to destroy the toxin. In Canada a dilution of diphtheria toxoid is used as Schick control. Although the heating destroys the actual toxin, certain other metabolic products such as bacterial protein are little changed, and give rise to a pseudo-reaction in some persons. It is generally accepted that a pseudo-reaction indicates that the person in question possesses antibodies to some metabolic product of the organism usually distinct from the specific toxin. The diphtheria pseudo-reaction is thus of the same allergic type as the tuberculin reaction, because it does not occur in a normal unsensitized person: the interaction of antigen and circulating antibody gives rise to the reaction. Schick toxin itself, however, causes a reaction in a normal non-immune person, or in one immune but without sufficient circulating antitoxin to neutralize the dose: thus a reaction to the toxin indicates that any antitoxin that may be present is below a certain amount, but it does not necessarily imply the absence of immunity.

Fortunately the two types of reaction can usually be distinguished by the relative rapidity of development and disappearance of the pseudo-reaction in contrast to the persistence of the positive Schick reaction: the pseudo-reaction is usually less intense than a positive Schick, but is raised. On the first and second days after injection it is frequently difficult to decide whether reactions are positive and pseudo or negative and pseudo, but at the end of a week the pseudo-reaction has usually disappeared while a positive Schick reaction may be very marked. Except in very young children the control test should always be done, and a positive control reaction is a warning to read the toxin reaction with care on more than one occasion. A severe pseudo-reaction usually denotes a high antitoxic content even though the toxin may produce a larger reaction than the control.

A positive and pseudo state is relatively uncommon, and it seems questionable to us whether it is worth while to immunize such persons, because they are liable to develop severe reactions after an injection of prophylactic, and the antibody which they already possess may constitute some useful form of defence against infection.

According to Dudley (1929) pseudo-reactions are found most frequently among diphtheria convalescents, recently recovered cases, carriers and inhabitants of places where diphtheria is or has recently been prevalent (in that order). We do not know how frequently they occur in artificially immunized persons.

ACTIVE IMMUNIZATION: SOME GENERAL CONSIDERATIONS

Although some active immunization was performed in this country as long ago as 1921, it is only during the last ten years that it has become a general procedure here.

The aim of active immunization should be the laying down of sound potential immunity, the production of good antitoxic titres and the maintenance of some antitoxin in the circulation for many years after the course of injections of prophylactic.

The principles of immunization were all originally worked out in animals and two of the most important ones are as follows.

(1) The Primary and Secondary response phenomenon (Glenny and Sudmersen, 1921): In animals which have had no contact with infection and no previous injections of prophylactic, a single injection of prophylactic is followed by a latent period of about three weeks, and the maximum immunity is reached in about eight weeks. In immune animals, whether naturally immune or artificially immunized, a single injection of prophylactic is followed by a latent period of about four days and the maximum immunity is reached in about ten days: this great and rapid immunity response offers a striking contrast to the small and gradual response to the primary stimulus.

(2) The effect of interval between injections (Barr and Glenny, 1945): Although a secondary response (i.e. a rapid production of antitoxin) is usually obtained from an animal reinjected three to four weeks after a primary stimulus, a better response (higher antitoxic value) is obtained if the interval between the two injections is increased. While this is true in the majority of cases, it does not hold when a very small first dose is given.

The times of appearance and of maximum concentration of antitoxin given above vary according to the dose injected. With small doses no antitoxic response may follow a single injection of prophylactic, but good potential immunity may be developed, as a result of which a high antitoxic titre may appear in the circulation after a second injection. With a very large single dose, antitoxin may appear as early as twelve days after injection in a non-immune subject.

The procedure in common use at the present time in human prophylaxis is the injection of a certain dose (0.2, 0.3 or 0.5 ml. of A.P.T.) followed a month later by a similar injection, usually 0.5 ml. It is generally considered that the intramuscular route is preferable to the subcutaneous route both as regards the immunity produced and the smaller liability to reactions. This procedure is adopted for all persons, whether young babies, school children or adults, but there is a tendency to inject smaller doses into adults than into young children because of their greater liability to develop reactions.

From the immunological standpoint dosage should be considered in relation to body-weight. We are strongly of the opinion that at present infants are the only persons who are satisfactorily immunized against diphtheria; the information gained by work on babies should be used in the consideration of procedures proposed for older persons.

IMMUNIZATION OF BABIES

It has long been known that babies born of mothers immune to diphtheria inherit antitoxin which is transmitted to them *in utero*. This antitoxin is

gradually lost. It has also been known for many years that a negative Schick reaction in very young babies does not necessarily signify the presence of circulating antitoxin. Within the last few years quantitative estimations of antitoxic content in cord blood samples have been made in Sweden by Vahlquist and in this country by us in collaboration with Dr. K. J. Randall, Pathologist at Farnborough Hospital. By testing blood samples taken from the babies at chosen times we found that, like other passively conferred antitoxin, the maternal antitoxin was lost at a steady logarithmic rate. Knowing the cord blood value, it is possible to calculate at what age the baby's antitoxic titre will reach any given level.

In experiments on immunization we found that if a first dose of 0.5 ml. of A.P.T. were given when the baby still possessed more than 0.04 unit per ml. of maternal antitoxin, immunization was unsatisfactory. A similar conclusion was reached by Vahlquist (1949). This amount of circulating antitoxin was enough to interfere seriously with the action of the A.P.T. When the maternal antitoxin had fallen to 0.04 unit per ml. or less at the time of the first injection, immunization was satisfactory. In assessing the success of immunization, we titrated the antitoxic values of blood samples taken from the babies about two months after the second injection of A.P.T.; this was given, on an average, eight to nine weeks after the first injection. Fig. 1 shows the distribution of

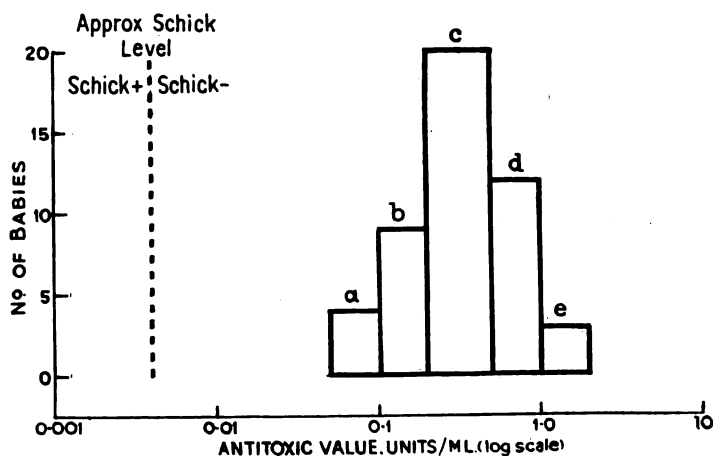


FIG. 1.—The distribution of antitoxic values in babies two months after the second injection of A.P.T.

values of samples from 43 babies, all of whom had less than 0.02 unit per ml. of residual antitoxin and whose ages ranged from 6 to 26 weeks at the time of the first injection of A.P.T. These results are taken from one of our publications (1950) and satisfy our criterion of successful immunization, which is that the logs of the values should be normally distributed over a small range.

In any population, some individuals respond to immunization better and others worse than the majority, but differences are small when the course of

immunization is good ; this is shown by the small number of groups a to e in fig. 1. If smaller doses had been given or the interval between them made shorter, we should expect that most babies in groups d and e would have responded almost as well, but those in a and b would have produced much less antitoxin and some might have been below the Schick level. The poor responders of a population account for the failure to obtain 100 per cent success in large-scale work on immunization, and are mainly responsible for the later Schick relapse rate, because many of them only attain antitoxic values about two to five times the Schick level soon after immunization. With smaller doses we should expect to obtain an irregular distribution of values showing a tendency for the good and bad responders to separate into two populations. Fig. 2 shows the effect of dosage upon response in guinea-pigs ;

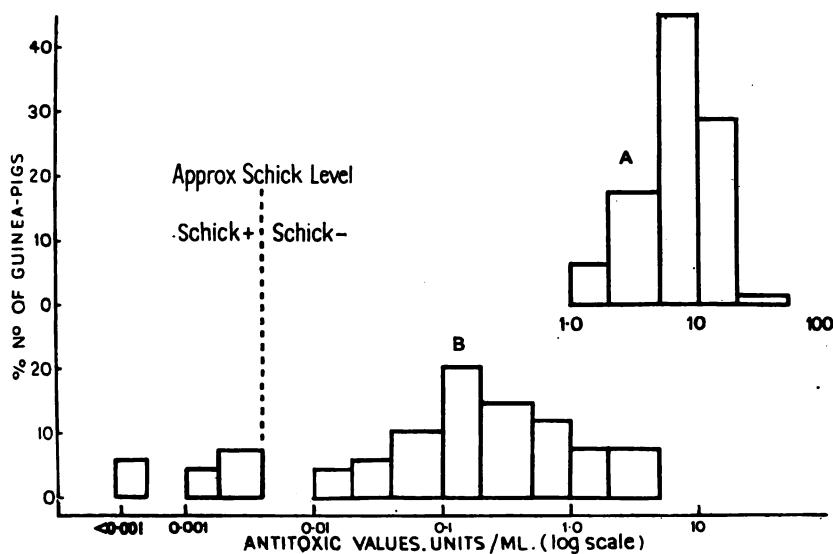


FIG. 2.—The effect of dosage on antitoxic response.

A, distribution of values in guinea-pigs after 2 doses, each 1 Lf of A.P.T.

B, " " " " 2 " " 0.1 Lf " "

2A gives the distribution of values obtained after two doses, each 1 Lf (0.02 ml.) of A.P.T. and resembles the distribution shown for well-immunized babies in fig. 1. Fig. 2B shows the much greater scatter of values obtained when only one-tenth of the dosage was used : in addition to the greater range of values in the main distribution there is a second population of very poor responders, some of which failed to produce any detectable antitoxin. Though the actual values reached two months after immunization may give some idea as to the relative times that antitoxin will remain in the circulation, the rate of loss of actively produced antitoxin depends on the opposing factors of loss in general metabolism and continued production which may go on for years after the last injection of prophylactic. This continued production is probably less in bad responders than in good responders.

It is interesting to note the relation of the actual values in fig. 1 to that which would be detected in the Schick test. The four babies with the lowest titres had about ten times as much circulating antitoxin as that required to make them just Schick negative. Very low standards of successful immunization are measured by the Schick test if it is done a few months after the last injection; most children who are only just Schick negative two months after immunization would be expected to relapse to the Schick-positive state six to twelve months later. It should be the aim for a course of prophylactic injections to produce such good immunity that all persons receiving it should be Schick negative for some years afterwards. Unfortunately there are indications that, in the immunization of adults, the Schick conversion rates may be sufficiently low that a Schick test could be considered desirable, or even necessary about two months after the last injection of the course, so that those persons who are still Schick positive can be detected and receive further injections before any benefit derived from the course is lost. We can only conclude from the results of our early work on babies that satisfactory immunity had been established by the preliminary course of injections and we do not yet know at what stage a boosting dose should be given.

In the course of the work we reached the conclusion, on small numbers of babies, that higher titres were achieved in those first injected before the age of 6 months, if the second dose of A.P.T. were given ten to eighteen weeks rather than six to nine weeks after the first. This was not so in older babies and there was a suggestion of poorer response among them. We thought it possible that this effect was due to the reduced first dose in relation to weight.

At the present time it is officially recommended that babies should receive their first dose of prophylactic at the age of 8 months. This recommendation is based on the belief that little or no maternally-conferred antitoxin would remain at that age. The second injection is recommended to be given one month later and the dosage used varies, some workers giving two doses of 0.5 ml. and others 0.3 ml. followed by 0.5 ml. The injection of a small dose followed by a larger one is immunologically unsound and has presumably arisen as a result of the procedure frequently used in adult immunization. Because of the greater liability of adults to experience reactions after prophylactic injections, the use of a small first dose in them is justified. Babies, on the other hand, tolerate a dose of 0.5 ml. of A.P.T. without any reaction and there appears to us to be no reason to justify the use of a smaller dose. The larger the first dose the better the potential immunity produced, so that a greater and more rapid response will follow a second injection.

We are of the opinion that better results would be obtained in nearly all babies if the first injection were given at the age of 3 months. Over 80 per cent of babies have less than 0.04 unit per ml. of maternal antitoxin at this age and could therefore be satisfactorily immunized by two doses, each of 0.5 ml. of A.P.T. We suggested that all babies, except those born of potentially immune mothers further immunized during pregnancy, could be successfully immunized by three injections, given at the age of 3, 6 and 18 months. The advantages of

early immunization are the possibility of giving a larger dose (in relation to body-weight) which, in conjunction with an interval of three months before the second injection, would bring about the establishment of better potential immunity and increased antitoxin-production. Reactions are rare or unknown in very young babies and no adverse emotional disturbances are shown by them when they are injected.

IMMUNIZATION OF SCHOOL CHILDREN AND ADULTS

During the early part of the immunization campaign started during the recent war, many thousands of school children were immunized against diphtheria. The prophylactic most commonly used was A.P.T. and the dosage officially recommended was 0.1 ml. followed four weeks later by 0.3 ml.

The immunological state of school children and adults differs from that of babies, because they have no passive antitoxin to interfere with the action of prophylactics, but they may have acquired some active immunity through chance contact with infection. This active immunity might not include the presence of circulating antitoxin, but would confer upon the person possessing it a power or response superior to that of a person possessing no such potential immunity. This probably explains the frequent finding of an unsymmetrical distribution of antitoxic values among adults with comparable immunization histories; it is not unusual to obtain a set of values distributed round a certain level and another smaller set distributed round a much higher level. The latter group may well represent the values of persons who either had some potential immunity before a course of prophylactic injections, or received further stimulation from natural infection after immunization.

There is but little information on the efficacy of immunization in school children apart from Schick conversion rates. These were determined on a fairly extensive scale in the early stages of the campaign and it was found that while many batches of A.P.T. gave Schick conversion rates of over 95 per cent, a few gave very much lower figures. This may have been due to the use of phenol in the preparation of A.P.T. by some manufacturers who also set themselves far too low a standard of potency in regard to both flocculating equivalents and immunizing efficiency in guinea-pigs. At that time the authorities had not formulated new regulations governing the potency of a prophylactic, such as A.P.T., which was to be used in two doses instead of three. The unsatisfactory figures for Schick conversion rates, obtained after the use of these insufficiently potent preparations (referred to in one of the medical journals as "a.p.t.!!"), caused the authorities to institute uniformity and a higher standard of antigenic efficiency among batches of A.P.T. At the same time we were asked to publish full details of the methods of preparation and testing of the A.P.T. prepared at the Wellcome Laboratories (Barr, Pope, Glenny and Linggood, 1941).

The Schick conversion rates were mostly determined early, two to four months after the last injection of the course, and the test of satisfactory

immunization was therefore not very stringent. These relatively early tests were useful, however, in revealing, in good time, the failures we have described. They also serve as a basis of comparison for the efficacy of recent immunization procedures in school children and adults. Fulton and colleagues (1942) obtained a Schick conversion rate of 97·8 per cent among school children at Oxford, following two injections, 0·1 ml. and 0·3 ml. of A.P.T. This figure was contrasted by Vollum and Wilson (1947) with their own finding of 86·1 per cent Schick conversion rate among 36 nurses three months after the second of two injections, 0·2 ml. and 0·5 ml. of A.P.T. prepared at the same laboratories as the A.P.T. used by Fulton *et al.* When three injections, each 1·0 ml. of T.A.F. were given at fortnightly intervals, the Schick conversion rate among 32 nurses was only 68·7 per cent. Vollum and Wilson, commenting on this lower rate in adults as compared with children in whom a smaller dosage was used, stated that the result serves to confirm the general experience that adults are more difficult to immunize than children.

So long as there is a chance of natural immunity being acquired as a result of subclinical infection, it is reasonable to suppose that the older groups of non-immune persons contain a larger proportion of refractory individuals than the younger age-groups. Adults would have had a longer period than small children during which natural immunity might have been acquired, and it is probable that some of them received natural stimulation at some earlier time, but, being poor responders, had failed to acquire any useful immunity. In this particular comparison, the dosage in relation to body-weight would be about the same for the children and the nurses, but if a first dose of 0·5 ml. of A.P.T. is needed to give satisfactory immunity in a young baby, less than half this dose could hardly be expected to develop good potential immunity in the average adult. The biggest problem in immunization of adults against diphtheria arises from the fear of producing reactions in them after large injections of prophylactic. Two injections separated by a short interval might be a way of increasing the primary stimulus: consequently the old-fashioned practice of giving weekly injections of prophylactic may not have been as unsound as it appears, although three weekly injections would not be expected to be very beneficial. Two doses given at an interval of a week would have the same immunological effect as a single dose in a non-immune person, and a third injection could be given three to four weeks or longer after the second to act as a secondary stimulus. A great deal of work could profitably be done on adult immunization, and indeed some such work has been done in Denmark by the immunologists at the State Serum Institute; they concluded that three injections were needed to obtain a high degree of success. Since it is so much easier to lay down good immunity in infancy, it is hoped that eventually full immunization of adults will not be necessary, and only an occasional boosting dose be needed. Young babies can tolerate much larger doses than adults, and so there is no difficulty in establishing good basal immunity in them: when basal immunity is good, subsequent boosting doses can be small.

BOOSTING DOSES

The generally recognized function of a boosting dose is to stimulate antitoxin production in persons whose titres have fallen some years after a course of immunization. It appears very probable, however, that in diphtheria immunization the boosting dose has to fulfil a much wider purpose by also reinforcing the inadequate potential immunity established by the preliminary course of injections. This was the case in one of us (M. B.) who, after a first boosting dose of A.P.T. gave a very slow antitoxic response, reaching a low maximum value two months after injection, and steadily falling thereafter so that the value was once again below the Schick level nine months after the so-called boosting dose. Somewhat better, but by no means good, results were obtained after a second boosting dose: in neither instance did antitoxin appear in the circulation by the seventh day after injection. This slow response may occur frequently in persons in whom the preliminary course of injections fails to produce good potential immunity, and the low maximum titre achieved may not be reached until four to eight weeks after the dose: such persons need a complete re-immunization rather than a boosting dose. In persons with good potential immunity (who frequently, however, also possess circulating antitoxin) antibody-production is sometimes initiated as early as the fourth or fifth day after a boosting dose.

The importance of boosting doses cannot be overestimated, since many of those in need of them are apt to be slow to respond to stimulation and thus may not produce antitoxin in sufficient quantity or with sufficient speed to enable them to resist infection. While a relatively small dose can boost the antitoxic titre satisfactorily, a large dose may be very much more efficient, in reinforcing potential immunity, and in maintaining an adequate level of antitoxic content for a long period. Some work on the effect of type and dosage of prophylactic used in boosting doses for young adults is now in progress at King's College Hospital, where Dr. A. C. Cunliffe is working in collaboration with one of us (M. B.). It will be several years before any final conclusions can be drawn in this work because of the need to examine blood samples over a long period in order to follow the duration of immunity. It is hoped that in course of time it may be possible to institute a simple test that can be used to detect those persons who need re-immunization rather than a single boosting dose, and the information obtained in this work should throw light upon the degree of efficiency of recent methods of basic immunization. It should be mentioned that in any research on human immunization much valuable information is lost if the earlier immunization histories are not available: they are obviously essential for working out the optimum number and spacing of boosting doses. This subject, so far as we know, has never received serious attention. That higher and more durable antitoxic titres are produced in man after a third injection of tetanus toxoid was shown by Evans (1943). We ourselves have shown (1947) that there is a definite relation between the percentage of tetanus or diphtheria antitoxin remaining in the blood of hyper-immunized horses a year after the last injection, and the number of immuniza-

tions the horses have undergone. We are of the opinion that active immunization against tetanus is a much simpler proposition than active immunization against diphtheria, at any rate in adults. Better immunity is established in the preliminary course of injections in tetanus immunization, and frequent boosting doses can be given with much less fear of unpleasant reactions than is the case in diphtheria prophylaxis. It is therefore a relatively simple matter to maintain a high degree of tetanus immunity by the giving of boosting doses at definite intervals. At present, however, it appears to be inadvisable to give boosting doses of diphtheria prophylactic unless they are needed. It is in this connexion that the Schick test is of the greatest value. Any immunized persons who have relapsed to the Schick-positive state should receive a boosting dose unless they have also given a marked reaction to the Schick control fluid. The "positive and pseudo" state, as we mentioned earlier, is fortunately comparatively rare.

At the present time it is recommended that children should be given a boosting dose (usually A.P.T.) at the age of 5 years on starting at school. The reason for the choice of this particular time is obvious: children from the age of 5 onwards will be going out into the world and may be exposed to infection. There is no evidence as to whether this time is suitable from the immunological standpoint and much work would be needed in order to investigate the point. Nevertheless such work should be done, because ill-spaced boosting doses produce but little lasting benefit in persons who were not well immunized beforehand. Unfortunately any investigation on this subject could not include the use of the Schick test, because of its well-known boosting effect in some persons. Cases have been recorded of Schick-positive subjects with 0.002 unit per ml. of circulating antitoxin acquiring titres of 0.1 unit per ml. three to four weeks later, this antitoxin having been produced as a result of stimulation by the Schick toxin. Thus frequent Schick testing of the same persons, if carried out in order to determine how long after immunization they relapsed to the Schick-positive state, would give misleading results. In practice however, in routine work, the Schick test can serve a very useful purpose not only in detecting those that need a boosting dose but in helping to maintain antitoxic titres by providing small frequent boosts. A Schick-negative result does not indicate how long an individual can safely be left before a boosting dose should be given, but the stimulating effect of the test itself may extend the time.

THE FUTURE AIMS OF IMMUNIZATION

We are of the opinion that circulating antitoxin as well as good potential immunity is necessary for complete protection against diphtheria.

When a person becomes infected and develops the disease, toxin is produced by the organism and in course of time becomes fixed to the tissues, as a result of which clinical symptoms appear. In the prevention of any disease caused by the formation of toxin by an infecting organism, it appears dangerous to rely upon rapid antitoxin-production by the host, following stimulation from toxin produced in infection. This seems especially dangerous in the case of diphtheria which has a very short incubation period usually stated as being

two to four days. The incubation period is the time elapsing between the date of infection and the date of appearance of symptoms, but fixation of toxin to the tissues may occur some time before symptoms appear. It appears to us that circulating antitoxin is essential to neutralize and so prevent fixation of the toxin produced in the initial stages of infection. The production of antitoxin as a result of stimulation by toxin formed by the infecting organism is unlikely to be initiated before the fourth or fifth day following this toxin production, and in persons with poor potential immunity it is more probable that seven to ten days elapse before any antitoxin is produced. By this time sufficient toxin may have been produced by the organism and fixed to the tissues, to have caused the development of severe symptoms.

Strong evidence in support of this reasoning is to be found in the report of Hartley *et al.* (1950) who found that considerable titres of antitoxin were produced in some persons after admission to hospital as cases of clinical diphtheria.

We are of the opinion that good antitoxic titres at the time of infection are of much greater importance than good potential immunity, because the latter alone is unlikely to afford complete protection though it may ensure that illness should be relatively mild. In any event good antitoxic titres, unless produced as a result of very recent immunization, seldom exist without well-developed potential immunity.

The present and future aims of diphtheria immunization must be the maintenance of sufficient antitoxin to ensure complete protection into adult life. It is very significant that in epidemics in Norway and Denmark there was a heavy incidence of cases among the adult population, suggesting that antitoxic values had lapsed in the absence of recent infection and the adult population had become relatively unprotected. It is possible that this would also occur in Great Britain in the event of an epidemic in the near future.

Now that the carrier rate has become greatly reduced, it appears that we can no longer rely upon "natural boosting" for the maintenance of antitoxic values, and better methods of artificial immunization should be instituted. We have shown (1947) that continued antitoxin-production can occur for many months or years after the last injection of an antigen has been given. It now remains to find the way to bring about this state in human prophylaxis.

We are convinced that immunization must be started in early infancy, and that possibly in the present state of knowledge a relatively crude prophylactic such as A.P.T., containing products of metabolism other than specific toxoid, should be used for the first injection. Doubt has occasionally been expressed as to whether modern highly purified antitoxin is as efficient therapeutically as the old unconcentrated serum, suggesting that other specific and useful antibodies might have been removed in the concentration process. If there is any truth in such assertions it would seem desirable to include products of metabolism, other than specific toxoid, in prophylactics. On the other hand, P.T.A.P. (made from purified toxoid) appears to be a more potent primary stimulus than A.P.T., but this prophylactic is still in the experimental stages.

It seems very probable that the ideal course of immunization should include the use of more than one type of prophylactic. For the preliminary course one or two injections of a precipitated or adsorbed antigen might be used, while later doses could consist of purified toxoid. This would be expected to diminish the chances of reactions after boosting doses, although as shown by Pappenheimer and Lawrence (1948) some persons develop allergic reactions after injections of highly purified toxoid.

There are many gaps in our knowledge at the present time, and these can only be filled by a series of long-term investigations. The Schick test cannot be used in research work; the information given by the result is very limited and the possible boosting effect caused by the injection of the test toxin may lead to misleading conclusions at a later stage. In all investigations blood samples should be examined at definite chosen times after injections have been given and the immunization details carefully checked. As pointed out by Dudley, such work can only be done by the collaboration of an "anti-diphtheria worker" with an experienced immunologist.

We are fortunate in collaborating with hospital pathologists, but much can also be done by the joint work of enthusiastic field workers in close touch with experienced research workers. The former should have at their disposal human subjects willing to assist, possibly for some years, in the investigation by submitting to a few injections and to periodic bleedings. The immunologist must have facilities for antitoxin titrations on a large scale and considerable knowledge of immunization procedure gained from animal experience. It is essential for laboratory workers to be able to deal with their side of the work from a quantitative standpoint and at least one of the team should be able to submit their combined results to statistical analysis.

After the establishment of a satisfactory procedure, only periodic checks would be necessary to ensure that the methods in use were still sound, although general conditions of natural stimulation might have changed in the course of time. If such methods had been adopted in the early days of immunization, the effect of the reduction in natural stimulation from infection would have been fully realized some time ago.

REFERENCES

- BARR, M. (1950) *Lancet* (Letter to Editor), **1**, 377.
 ———, and GLENNY, A. T. (1945) *J. Hyg. Camb.*, **44**, 321.
 ———, ——— (1947) *Lancet*, **2**, 647.
 ———, ———, and RANDALL, K. J. (1950) *Lancet*, **1**, 6.
 ———, POPE, C. G., GLENNY, A. T., and LINGGOOD, F. V. (1941) *Lancet*, **2**, 301.
 DUDLEY, S. F. (1929) *Quart. J. of Med.*, **22**, 321.
 ———, MAY, P. M., and O'FLYNN, J. A. (1934) Sp. Rep. Ser. Med. Res. Coun. Lond. No. 195.
 EVANS, D. G. (1943) *Lancet*, **2**, 317.

- FULTON, F., TAYLOR, J., MOORE, B., WELLS, A. Q., and WILSON, G. S. (1942) *Brit. Med. Journ.*, **1**, 315, 349.
- GLENNY, A. T., and SUDMERSEN, H. J. (1921) *J. Hyg. Camb.*, **20**, 176.
- HARTLEY, P. (1949) *Journ. of Pharmacy and Pharmacology*, **1**, 425.
- , TULLOCH, W. J., ANDERSON, M., DAVIDSON, W. A., GRANT, J., JAMIESON, W. M., NEUBAUER, C., NORTON, R., and ROBERTSON, G. H. (1950) *Sp. Rep. Sec. Med. Coun. Lond.* No. 272.
- PAPPENHEIMER, A. M., and LAWRENCE, H. S. (1948) *Amer. J. Hyg.*, **47**, 233.
- PARISH, H. J., and WRIGHT, J. (1938) *Lancet*, **1**, 882.
- VAHLQUIST, B. (1949) *Lancet*, **1**, 16.
- VOLLUM, R. L., and WILSON, G. S. (1947) *Monthly Bull. Min. of Health and Pub. Health Lab. Service*, **6**, 209.

SOME REFLECTIONS ON THE ORGANIZATION OF GENERAL HOSPITALS

BY

Colonel G. MOULSON

Late Royal Army Medical Corps

THE War Establishment of every general hospital shows the bed strength in brackets after the designation. This is an unfortunate practice as it leads people to think of general hospitals in terms of beds rather than patients. It is doubtless a relic of the pre-scientific era of Medicine, when patients spent much longer periods in bed, and when the dressing of the beds was more important than the dressing of the patients. As a method of measuring the requirements of a hospital it is undesirable for the following reasons :

(1) The hospital establishment is the same whether the beds are occupied or not.

(2) It takes no account of the fact that a hospital is full when 90 per cent of the beds are occupied, since certain diseases cannot be warded together, nor can sexes be mixed.

(3) It makes no allowance for the degree of illness of patients treated in hospital, nor for the varying conditions under which different diseases require treatment. On the average, in a military general hospital, 60 per cent of patients are ambulant and 40 per cent are confined to bed.

(4) On the administrative side, it makes no provision for additional cooks, where special diets may be a major factor in the treatment, or for extra clerks, where clerical work is excessive on account of medical boards or of complicated note typing as in neurological work.

(5) It does not discriminate between patients' ranks, nor allow extra nursing and catering staff for officers.

(6) Beds require neither posts, pay, nor discipline ; a contributory factor to the omission of postal staff, pay serjeants, and hospital police in former war establishments. In a large general hospital, the latter are required on security grounds alone.

A general hospital may be likened to a vertebrate animal where the administrative staff corresponds to the skeleton or supporting framework ; the brain which directs and co-ordinates ; and the digestive organs which supply the nourishment. The professional side is represented by the muscles and joints which produce the function. The accommodation is equivalent to the integument which houses the whole and hospital supplies are analogous with the animal's food.

Now the role of a general hospital is liable to change with the strategical situation, at one time mainly medical, at another mainly surgical. At yet other times, the use of a general hospital may require to be diverted to T.B., skins, V.D., infectious diseases or mental disease.

In the animal, unused muscle groups can be maintained at rest. In the general hospital it is neither economical nor desirable to allow clinical groups to ruminate. Therefore when not required in one hospital, it is better to remove a clinical group to some other hospital where it can justify its existence or alternatively disband it temporarily for extraneous employment.

When an animal uses a muscle group extensively and to the exclusion of other groups, the skeleton will change in conformity. The hospital skeleton likewise should be adaptable to the needs of the clinical group.

Internal anatomical changes produce alteration in the shape and extent of the covering integument ; similarly, changes in clinical groups are likely to require extension and alterations in the accommodation provided for the hospital.

The object of the above analogies is to stress that a general hospital must be flexible and vital rather than inert and dead, as it is apt to appear when described in terms of beds.

Whether due to the march of the welfare state or to the abolition of suffering from improved medical techniques, patients in advertisements for medical practices are now frequently referred to as units. Using unit in the same sense, the size of general hospitals might well be expressed in multiples of one hundred units instead of beds, e.g. " War Establishment of a General Hospital (600 units)," bearing in mind that one unit is equivalent to one patient.

That the constitution of general hospitals in the 1939-45 War was found to be too rigid was shown by the formation of numerous specialist teams, which could be switched about and attached as and when required. That idea might well be expanded to embrace every kind of specialism including general medicine, dermatology, mental and V.D. Specialist teams may be compared to small highly specialized groups of muscles such as the oculomotors or the lumbricals. The former serve no useful purpose without vision nor the latter with stiff joints.

If specialism is made universal, as it should be in a general hospital, the term " general duty," an alias for blissful ignorance, can be allowed to fall out. No young assistants, be they medical or nursing, help anything or anybody unless they have special interest, training and experience in the special subject in which they are called upon to assist.

Memories of " general duty " orderly medical officers leaving the surgical cases to the care of Providence and of medical sisters supervising surgical cases for the " day off " are better left as memories.

Having converted all specialists into teams, it seems logical to suggest that all supporting ward staff should be capable of mobility too. This could be done by creating clinical groups or sections composed of clinical officers and nursing staff adequate to treat and care for a given number of patients.

The establishment of a clinical group could be based on the staff required for the treatment of 25, 50, 75 or 100 patients. The size of the group would be fixed and predetermined for each separate branch of Medicine and Surgery. Whereas a 25 unit or patient group might be suitable for E.N.T., a 100 group might be more convenient for general medicine.

Each specialist team would then be responsible for working so many clinical groups in its own particular speciality. The number would obviously depend on the size and composition of each specialist team and all need not necessarily be housed under the roof of one hospital.

In the same way that each specialist team would have its own establishment and scale of specialist equipment, each clinical group would have its fixed establishment and scale of special ward equipment.

In the past, the establishment and stores of a general hospital have been laid down *in toto*, based on the number of beds. It was then left to the Commanding Officer to make the best of his resources for satisfying professional requirements. These were often inadequate and sometimes the administrative side was exalted at the expense of the professional in matters of man power.

The exact composition of specialist teams and clinical groups would require to be determined by a select committee or working-party and any special factors necessitating changes in administrative staff would need to be considered in relation to each.

The idea is gradually emerging that the professional component of a general hospital should be grouped, mobile and attached, whilst the administrative side should be mainly permanent and fixed. The word "permanent" is qualified because it has already been mentioned that certain specialized professional groups working in a general hospital require additional dietetic staff and/or clerks. Large officer sections need separate cooks, waiters, pack-storemen, as well as additional nursing staff. Nevertheless the administrative staff require a comparatively small adjustment when a general hospital changes its role.

With all its stores, offices, special departments, special construction and engineering problems, a general hospital is a clumsy and complicated formation from the Army point of view and movement is expensive from the Treasury angle. When buildings in a theatre of war have been requisitioned and transformed into a general hospital, the longer they can be retained as a hospital, the greater will be the all-round saving. It is submitted that this will be most easily achieved by keeping the administration static and moving the professional teams and groups as circumstances may require. For example, as general medical and surgical groups move forward they can be replaced by T.B., skin, V.D. or mental groups in the rear.

It may be argued that with greatly increased air ambulance transport in the future, movement of general hospitals, once established, will be rendered unnecessary. Unfortunately air ambulance transport in any quantity presupposes air superiority, which may be far from obtainable in the early stages of a campaign.

The creation of general hospitals in a theatre of war overseas should be accomplished in phases.

- I. Initial planning of total units, i.e. patient cover for all purposes by D.M.S. Force.
- II. Reconnaissance for hospital sites and suitable accommodation by senior administrative medical officers with specialist advisers.
- III. Joining of administrative staff, coincident with receipt of stores and equipment.
- IV. Joining of professional staff, i.e. specialist teams and clinical groups, when Phase III is completed.

Planned in that order, no one is kept hanging about unnecessarily.

Whilst Phase II is in progress, stores and equipment are despatched to the theatre of war in bulk and distributed to hospitals, as and when required, to coincide with the Phase III of each hospital.

The first three phases may well be accomplished before the initial enemy attack.

On completion of Phases I and II the following information is known.

- (a) Total patient cover for Force.
- (b) Proportion of patients peculiar to each speciality is estimated from (a).
- (c) Site, unit (i.e. patient), strength, and exact function of each hospital has been determined.
- (d) Number of specialist teams and clinical groups required to implement (c) can be calculated.
- (e) Total stores are calculated from information available under (a) and (b).
- (f) Distribution of stores to each hospital is based on information available under (c) and (d).

Let us assume that clinical groups have been fixed as 100 patients or units for general medical, 100 for general surgical, 50 for skins, 25 for E.N.T. and 25 for eyes. A general hospital of 500 units is required at site X. Proportion of general medical to general surgical units is to be equal.

The number of clinical groups required to staff the hospital would be Medical 2, Surgical 2, Dermatological 1, Otological 1, and Ophthalmic 1. Specialist teams would be proportionately distributed. Administrative staff would be on the scale of a 500 unit hospital. For total staff, specialist teams and clinical groups staff are added. Stores and equipment would be basic stores for a 500 unit hospital plus special equipment for specialist teams and clinical groups.

As regards the allotment of ancillary departments of Pathology, Radiology, Blood Transfusion and Physiotherapy, it is considered that two or three grades of each type could be given a fixed establishment and equipment scale. The particular grade of any type selected for any given general hospital would depend upon the number and nature of the clinical groups of which it was composed.

The loose attachment of the technical personnel proposed in this article

is likely to meet with criticism. It was, however, proved in the 1939-45 War on more than one occasion, that the technical staff of a general hospital awaiting a definite role, could be successfully grafted on to an existing general hospital and removed again without causing a tremor in the parent hospital. In one large hospital, this process was repeated twice.

There are advantages also in the constitution of a general hospital being adaptable to the accommodation available, rather than vice versa.

It will be conceded that in the case of an invasion force, general hospitals complete in all particulars, must be formed prior to embarkation. That is considered to be the only exception.

In the 1939-45 War, so many attempts in respect of general hospitals were made to build the body before the skeleton was in situ and before the food was available to nourish the body. The resultant waste of time in professional man and woman hours was appalling.

Whilst the present planning of an International Army for the defence of Europe is in progress, it is not known what steps, if any, are being taken to produce an international military medical force. It is quite certain, however, that whatever solution is arrived at, the general hospital patient population will become vastly more international than it did in the late war. The language difficulty is bound to arise and owing to differing traditions and techniques, an international general hospital composed of national clinical groups and specialist teams is likely to work better than a general mix up of individual staff of all nationalities or alternatively than separate national hospitals, which are unlikely to be available exclusively for their own nationals.

SUMMARY

(1) Except in Invasion Forces, the formation of general hospitals should be phased.

(2) Each general hospital should consist of a fixed administrative cadre to which varying numbers and types of specialist teams and clinical ward groups can be attached or detached at will.

(3) All general hospital stores should be issued initially from bulk in the proposed theatre of war and on a group basis to individual hospitals.

(4) Professional personnel should not join a general hospital until it is ready to receive them.

(5) The unit (i.e. patient) in multiples of 25, 50, 75 or 100 becomes the yard-stick for measuring the size and composition of general hospitals in lieu of beds as heretofore.

(6) A list enumerating administrative sections, clinical groups, specialist teams and ancillary departments is attached.

Contentious criticism of any article is almost unknown in the form of letters addressed to the Editor of the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.¹

¹Any criticism, especially constructive criticism of existing methods or establishments or of the proposals given in this article will be extremely welcome and will receive appropriate publicity (Ed.).

May such be anticipated by the submission that this article was written as a provocation to stimulate thought on, and a solution of, a problem which is likely to become increasingly important in the future.

COMPOSITION OF A GENERAL HOSPITAL

<i>Administrative sections</i>	<i>Clinical groups</i>	<i>Ancillary departments</i>
Clerical	<i>Medical</i> General	Pathological
Stores	Neurological	X-ray
*Transport	Tuberculosis	Physiotherapy
*Catering	Infectious	Blood transfusion
*Educational	Dermatological	
*Welfare		
*Postal and telephones	<i>Surgical</i> General	
*Maintenance†	Orthopædic	
Sanitary	Neurosurgical	
*General duties‡	Thoracic	
	Otological	
	Ophthalmic	
	Dental	
	<i>Various</i> Officers	
	Mental	
	Venereal	

*Non-medical personnel

†Carpenters, electricians and boilermen

‡Messengers, ambulance orderlies, general fatigues, etc.

- NOTES.—(1) With the exception of the officers' group which is necessarily assorted, specialist teams would be allotted to every one or more clinical groups and ancillary departments according to the size determined upon.
- (2) Officers' groups would necessarily be installed where major specialists were available.
- (3) Anæsthetists are included in the various types of surgical teams.

UNUSUAL EVIDENCE OF EARLY HODGKIN'S DISEASE

BY

WILLIAM H. CROSBY

Major, Medical Corps, United States Army

From the Medical Division, The Queen Alexandra Military Hospital, London

HODGKIN'S disease is not common ; yet it is not so uncommon that we may let down our guard. The number of cases seen by medical officers is disproportionately large, for it is a disease of youth, and armies are composed largely of young men. We should never allow the diagnosis to fall into the rare-and-unusual category of conditions which are "never" encountered in the M.I. Room, nor, in considering the diagnosis, should we hold to the narrow concept of a disease which involves primarily lymph nodes. Hodgkin's disease may affect any sort of tissue, its onset may be insidious or catastrophic and it may mimic other less formidable diseases in a most disarming manner.

The diagnosis of Hodgkin's disease is usually made without difficulty, and the course of the disease thereafter is stereotyped. Death occurs soon or late, the time depending upon the velocity of the disease and, in some cases, upon the treatment. The following case represents the usual course of events.

Case 1.—A 26-year-old Army officer, healthy and fit, noted a lump in his neck beneath the left ear while shaving. During the next two weeks the lump spontaneously grew smaller. Then it again grew large, and the officer reported to his medical officer. The mass proved to be a lymph node which was removed. Microscopy demonstrated changes diagnostic of Hodgkin's disease. The patient was treated by X-ray therapy over the cervical area and by nitrogen mustard. He continued in good health. Five months later he reported that a lump was present in his left axilla.

The enlargement of a cervical lymph node in this patient was an early manifestation of his disease. In such a patient the diagnosis is not a clinical problem. It depends entirely upon examination of the pathological tissue, and the physician has only to ask for a biopsy. It might better be said that the physician *must* ask for a biopsy. An enlarged lymph node in the absence of a clearly infectious cause demands biopsy. Occasionally the disease does not offer the gambit of a palpable lymph node. It begins in the deeper structures of the reticulo-endothelial system and may progress for months before the symptoms of generalized illness bring the patient to medical attention. In such a case the skill of the clinician is called upon. Illness without lymphadenopathy is not the common concept of Hodgkin's disease. The patient described as Case 2 was intently studied for three weeks and was seen by several consultant physicians. Yet the presence of Hodgkin's disease was not suspected.

Case 2.—A 23-year-old negro soldier was taken ill with fever, nausea and malaise. He was admitted to the infectious disease service of a military hospital. Physical examination was negative except for fever which was high and unremitting. He had a moderate normochromic anæmia (R.B.C. 3,700,000). White cell count was 5,000 with 40 per cent of monocytes. No specific evidence of infectious disease was found. Blood cultures were negative, and all agglutination tests were insignificant. During the investigation the patient's condition deteriorated rapidly. The marked monocytosis persisted. He died. Post-mortem examination revealed Hodgkin's disease which involved only the retro-peritoneal lymph nodes.

Ultimately the diagnosis of Hodgkin's disease must be established by microscopy. However, the clinical picture is not without its distinctive characteristics, and, since the disease is a profound alteration of the reticulo-endothelial system, it is not remarkable that the blood cells derived from that system should commonly show aberrations. Although a normal white-cell differential count is the rule, a high proportion of monocytes is not an uncommon finding, and eosinophilia sometimes as high as 30 per cent may occur. The total white cell count is unusually normal or moderately elevated, but where the mesenteric and retroperitoneal lymph nodes alone are affected, leukopenia is found. A triad consisting of leukopenia, anæmia and fever commonly occurs in "abdominal" Hodgkin's disease. In Case 2 above the triad is present. Only the excessive number of monocytes brings the total white cell count to normal. This characteristic triad is well illustrated by the following case.

Case 3.—A 19-year-old soldier was taken ill with fever and malaise. He was hospitalized for two weeks. The fever by that time subsided, and he returned to his unit feeling almost fit. The fever recurred in three weeks. This time he became severely ill with malaise and nausea. Spleen and liver were enlarged. There was no palpable lymphadenopathy. He was found to be anæmic (R.B.C. 3,500,000). His white cell count was low, 1,900, and later fell to 1,000. Ratio was substantially normal. During the next three weeks the patient was studied and treated as an infectious disease. His fever finally fell, and the white cell count rose to 3,000. The spleen remained enlarged. The patient was given a course of nitrogen mustard as a therapeutic trial. The spleen shrank and there was subjective improvement in the patient's condition.

This case of abdominal Hodgkin's disease is typical of the difficulty encountered where there are no lymph nodes available for biopsy. However, the triad of leukopenia, anæmia and fever was unmistakable. After other diseases had been excluded a therapeutic trial with nitrogen mustard was performed. Response to nitrogen mustard therapy is almost as diagnostic of Hodgkin's disease as the demonstration of Reed-Sternberg giant cells. The diagnosis in this particular case was later confirmed by biopsy when several slightly enlarged lymph nodes appeared in the neck.

The repetition of febrile episodes which occurred in Case 3 is also characteristic of Hodgkin's disease. A week or two of rather high temperature alternating with periods free of fever gives a temperature chart with a "battlement" silhouette. This pattern is sometimes called Pel-Ebstein fever. The reason for the bouts of fever is unknown.

The very illness of these patients may suggest the diagnosis of Hodgkin's disease. There are few conditions which can cause a young man to grow so

rapidly and profoundly ill. But this is not always the case, and one should not expect the first evidence of this "subterranean" variety of Hodgkin's disease always to be the devastating sort of illness that occurred in Case 2. The onset may be insidious where the first episode of fever is an elevation to 99° in the evening. Where there is no fever, night sweats may be the first evidence of systemic disease.

Although lymphadenoma is not an infection, the coincidence of infection and Hodgkin's disease is not uncommon. This, again, is not surprising for the reticulo-endothelial system is involved in the immunity mechanism of the body. Herpes zoster is unusually frequent in Hodgkin's disease as well as in the other malignant lymphomata. When one encounters herpes zoster in a young adult it should at least cross the mind to look for lymphatic leukæmia, giant follicular lymphoblastoma, lymphosarcoma or Hodgkin's disease.

Case 4.—An 18-year-old boy developed herpes zoster and recovered from it in several weeks. Six months later he joined the Army and during his second week of service found a lump on the left side of his neck. This proved to be an enlarged lymph node, and on biopsy a diagnosis of Hodgkin's disease was made. A chest X-ray showed that mediastinal lymph nodes were also involved.

Here one may only speculate whether or not Hodgkin's disease was present when the herpes occurred. Since the involvement of lymph nodes was somewhat widespread when discovered, it is probable that the disease had existed six months before. One may also speculate whether or not a dormant disease was "lighted up" when the reticulo-endothelial system was stimulated by the vaccinations given when the boy entered the Army.

The immunity mechanisms of the body may show other evidence of dysfunction in Hodgkin's disease. Hæmolytic anæmia is one of the most interesting, for in this complication the reticulo-endothelial system elaborates an antibody against the patient's own red blood cells. It is probably through this abnormal antibody system that the enormous destruction of the patient's blood is brought about.

Case 5.—A 26-year-old soldier was admitted to a military hospital with jaundice, anæmia and splenomegaly. He was ill and febrile. There was no lymphadenopathy. There was no bile in the urine. The plasma bilirubin was of the "indirect" variety. His anæmia was normochromic and rather severe (R.B.C. 2,000,000). The red cells showed increased osmotic fragility. A diagnosis of hæmolytic anæmia was made, and splenectomy was performed. In the spleen and in nodes at the splenic pedicle were found changes characteristic of Hodgkin's disease.

The anæmia of Hodgkin's disease is not always hæmolytic in nature. The bone-marrow in "abdominal Hodgkin's" is rather fibrotic, and the aspirate is hypocellular. This suggests an "aplastic" process. The anæmia in such a case is due to inadequate production of red cells rather than increased destruction. In the terminal stages of the disease there is anæmia without blood loss which is often intractable to transfusion. This is probably due to rapid blood destruction, although the classical signs of hæmolytic disease—jaundice, reticulocytosis, urobilinuria—are lacking.

Other tissues than the lymph nodes are commonly found to be involved in Hodgkin's disease. Sometimes the changes in these organs produce the first symptoms of the disease. The collapse of a vertebral body may cause pain and neurological signs. Involvement of the gastro-intestinal tract may produce abdominal symptoms, even symptoms of peptic ulcer. Swelling of peri-bronchial lymph nodes may cause respiratory symptoms. These symptoms, of course, are not characteristic of the disease. They are non-specific results of destruction, infiltration and pressure.

The intense itching which sometimes accompanies Hodgkin's disease is not due to infiltration of the skin. Examination of the affected skin shows no change. This symptom may be the presenting evidence of the disease. A search for lymph nodes in cases of severe, intractable itching may lead to a diagnosis. Of the many symptoms of this disease, pruritis is often most intractable and troublesome.

In summary, the diagnosis of Hodgkin's disease is made early and easily when the first manifestation is an enlarged peripheral lymph node. But the process frequently begins in deeper tissues. The "subterranean" disease progresses to a symptomatic state before it comes to the attention of the patient. The symptoms, at first glance, may seem non-specific. But some are characteristic of Hodgkin's disease and so may suggest the diagnosis. Of particular significance is the triad of leukopenia, anæmia and Pel-Ebstein fever in "abdominal Hodgkin's." A high proportion of monocytes or eosinophils in the peripheral blood is less indicative, but coupled with an obscure fever it may suggest a lymphadenomatous process. So may intractable itching. The itching and eosinophilia are sometimes to be noted in the same patient. Herpes zoster occurs with disproportionate frequency in patients with lymphoma. Acquired hæmolytic anæmia associated with an abnormal antibody is no rare complication of Hodgkin's disease. As in the case of these other signs, it may be the first evidence of such a malignant process.

THE PROMOTION AND MAINTENANCE OF MENTAL HEALTH IN THE MILITARY COMMUNITY

BY

Major MARTIN M. LEWIS, M.B., Ch.B., D.P.H., D.T.M.&H.

Royal Army Medical Corps

(Specialist in Army Health)

PART II

SECTION VI.—THE ROLE OF MEDICAL OFFICERS, ADMINISTRATORS, COMMANDERS AND LEADERS WITH REGARD TO THE PROMOTION AND MAINTENANCE OF MENTAL HEALTH

Medical Officers

The Regimental Medical Officer (R.M.O.).—A major part of the work of the R.M.O. is concerned with the prevention of disease and the promotion of health. Stress has always been laid on his duties in relation to the promotion of physical health ; his responsibilities with regard to mental health must not be overlooked.

The R.M.O. should watch continually for changes in the state of mental health of the troops for whom he is medically responsible. By virtue of the fact that he is a trained observer, as well as “family doctor” and “unit medical officer of health,” he can often be the first to note changes in morale. Having noted such changes he can collaborate with the other officers in the unit in determining the causes, and can give his commanding officer the appropriate professional advice.

The R.M.O. should maintain a “watching brief” concerning the multitude of factors which affect mental health. He should take note of those matters which affect work, such as hours of work, duty rosters, training programmes, the design, use and availability of equipment, general working conditions and the suitability or otherwise of various individuals for their particular employment. He should also concern himself with those matters which affect the soldier's everyday life, routine and general environment, such as organized medical care, accommodation, food, clothing, ablution facilities, laundering arrangements, sanitation, rest, sleep and the provision for mental and physical recreation. In addition, he should pay attention to all matters which have a particular bearing on the soldier's personal circumstances, such as pay, promotion, postings, leave, mail and the welfare of his family. All these matters are concerned with mental health in some way or other.

The R.M.O. is, of course, unable to take executive action regarding any but a few of these items. Yet he can, by offering diplomatic advice in the proper quarter at appropriate moments, do much to improve circumstances

which have an important bearing on the soldier's mental health. His success in this matter will largely depend upon his status in the eyes of the unit, particularly the unit officers. His status will be high if he shows a proper degree of professional skill and ability, an interest in the traditions and customs of the unit, an understanding of the work done by the unit, military bearing and behaviour appropriate to his rank and a desire to live and work as a member of the unit instead of as a mere "tame doctor" whose only interest is in curative medicine.

The R.M.O. has also an important part to play with regard to the handling of potential "misfits," particularly cases of incipient separation anxiety; such mild cases of neurosis should be dealt with in the unit. In this respect the R.M.O.'s own attitude is important. Impatience with regard to a patient who repeatedly reports sick only brings out his negativism, and he has to prove to the R.M.O. as well as to himself that he is really ill, therefore his symptoms increase. As well as giving calm reassurance the R.M.O. must be a good listener, and the patient should be encouraged to discuss his worries. Co-operation with the Padres and Welfare Services is valuable in certain cases. Help from the R.M.O. will often give support to emotionally immature and dependent youngsters and will assist them to develop normal independence and individuality. The R.M.O. should also educate the unit officers and N.C.O.s in the handling of these men, and enlist their aid in getting such sick men fit for duty.

The Specialist in Army Health.—The Specialist in Army Health is concerned with mental as well as physical health; if a Specialist in Psychiatry is not available he must be prepared to advise on all matters pertaining to mental health.

If a Specialist in Psychiatry is available the Specialist in Army Health works in close co-operation with him, for their respective spheres of activity are closely linked and liable to overlap.

When giving advice to medical administrators, to the staff and when visiting units in the field, the Specialist in Army Health must bear in mind his responsibilities regarding mental hygiene.

The Specialist in Army Psychiatry.—He is, among other things, the technical adviser on all matters affecting the mental health of the military community.

Command and Area Psychiatrists examine all cases referred to them at Army Basic Training Units, which is usually about 12 per cent of the total intake. The Psychiatrist recommends the retention or discharge of such men and, if a man is to be retained, he indicates the type of Army employment suitable to his intelligence and personality.

The Army Psychiatrist has duties to perform in connexion with disciplinary cases. Every soldier admitted to an Army Detention Barracks is seen by a psychiatrist to decide whether or not he is fit for transfer to a Military Corrective Establishment; the soldier must be considered suitable for rehabilitation for further Army service in order to qualify for such a transfer.

In addition, the Army Psychiatrist interviews and recommends the disposal

of all cases of instability referred from units ; this includes the disposal of cases of psychopathic personality with anti-social trends.

Specialists in Surgery, Medicine and Allied Clinical Subjects.—Although they are primarily concerned with curative medicine in respect of physical disease, clinical specialists need to practise a considerable amount of mental hygiene in relation to their patients. Disabilities of a physical nature due to disease or injury are rarely limited by pathology alone, as a “functional” element is nearly always present.

A field of mental hygiene which affords great scope for the clinician is concerned with rehabilitation, as by improving the patient’s mental health the course of physical disease can be ameliorated and its effects mitigated.

The Administrator.—Administrators at all levels, from those working in the smallest units to those in the largest formations, exert important influences on the mental health of the groups which they administer. Bad administration can lower morale as quickly as any other factor.

In general, bad administration results from a neglect of matters concerning prevision and provision.

Lack of prevision and provision results in the soldier finding himself in a situation for which proper administrative arrangements have not been made ; hence men may arrive at units unannounced, their rations may not have been indented for, accommodation may not be prepared, there may be insufficient cash available for the issue of their pay, their mail may not have been forwarded from their previous units, transport may not meet them at transit points and so a state of muddle, confusion and frustration results. These are only some examples of the way in which the soldier may be affected by bad administration; it is easy to think of others.

Bad administration will often result in the soldier having to put up with unnecessary discomforts and hardships. Unavoidable difficulties will always occur in the administration of any community, and when things go wrong it will not always be possible to put them right ; but it is important that the soldier should be made acquainted with such difficulties, and that he should be made to realize that everything that can be done is being done.

Commanders and Leaders.—During the recent war a pamphlet was put out by the War Office called “Suppose you were a Nazi Agent.”

It projects the situation that an enemy has been commissioned as a British Officer in a British unit, forbidden to employ actual sabotage and told to keep within King’s Regulations. It then gives under three headings a list of actions damaging to morale which this enemy agent might take.

This list forms a useful summary of those matters which affect the mental health of the soldier and which come within the sphere of the Commander and leader, and is as follows :

A. *Damaging trust in leaders.*

- (1) By display or abuse of officer privilege at a time when conditions for the men are bad.

- (2) By failure to explain the significance of orders, so that they appear inhuman or arbitrary.
- (3) By failure to explain sudden interference with leave or other privileges.
- (4) By failure to take adequate disciplinary action where necessary.
- (5) By taking severe disciplinary action without investigating the cause of the delinquency or the defect of morale which lay behind it.
- (6) By sarcastic comment and criticism.
- (7) By failure to give praise where it is due.
- (8) By building up a façade of discipline without a basis in morale.
- (9) By being too close on the heels of the Non-Commissioned Officers in their work.
- (10) By ignoring Non-Commissioned Officers in their work.
- (11) By over-estimation of the enemy, or by inaccurate estimation of our own values.
- (12) By displaying ignorance of our aims, and a lack of interest in the Army and its history.
- (13) By display of social or political bias, disguised, if possible, under a different label.
- (14) By dodging questions and discussion.
- (15) By making it clear in behaviour rather than speech, that Service is an unwelcome interruption in life.

B. *Damaging group morale.*

- (1) By breaking up group of friends in platoons and barrack-rooms.
- (2) By changing men over, so that they never get time to settle in one job.
- (3) By keeping an intelligent man in a boring job, and by putting an unintelligent or unsuitable man in a position of authority.
- (4) By boring men with parts of training they already know well.
- (5) By being bored with training instructions yourself.
- (6) By instructing men more frequently and more intensely in the maintenance, rather than the use, of weapons.

C. *Damaging individual morale.*

- (1) By failure to show interest or to encourage a man regularly.
- (2) By ignoring minor requests in relation to leave.
- (3) By refusing to listen to men's grievances or, better still, by paying little attention when they do come with them.
- (4) By making men be excessively fussy about relatively unimportant affairs.
- (5) By writing to men's families in an inaccurate or offhand way, or by not writing at all.

Most of these actions are damaging to the convictions of competence, power and worth already discussed in Section III, and in their avoidance lies the key to good man-management.

SECTION VII.—THE MENTAL HEALTH OF THE SOLDIER'S FAMILY

In discussing the mental health of the soldier's family I shall refer in particular to his wife and children, although we must bear in mind the mental health of parents and other relatives with whom he may have strong emotional ties.

This subject concerns mainly the family of the Regular Soldier, since the National Serviceman is only in the military community for a short period and, because of his youth, is not likely to have serious family responsibilities.

In recent years, much has been done to promote the mental health and welfare of the soldier's family, and to minimize the soldier's domestic worries. The state of affairs in this respect is better in some military stations than in others; on the Continent the provision of furnished quarters for families, and arrangements for the care and education of the soldier's child, has reached a very high standard. But there is still much to be done in many stations, both at Home and abroad.

In general, good mental health must be founded on a happy and united family unit. This is just as important when the breadwinner is a member of the military community as when he is engaged in some civilian occupation.

The maintenance of the mental health of the soldier's family is no easy task, as by virtue of the work he has to do his place of duty has to be changed many times during his career. Thus, the family is often faced with a choice between two alternatives. It may remain settled in one place, while the soldier travels about the world in the course of his duty, or it may lead a nomadic existence accompanying the soldier wherever he has to serve; in many cases the family is prevented from choosing this latter alternative, either on account of lack of accommodation or because the situation in the area to which the soldier has been posted contra-indicates the presence of women and children.

Both these alternatives have their "pros and cons."

If the family remains settled in one place it at least has somewhere to which it can refer as "home." This is a point of particular importance, especially with regard to children who need the sense of security provided by a fixed and settled home environment. In addition, if this alternative is adopted, the family is spared the upheavals of frequent moves; such upheavals have important psychological implications, as they give rise to considerable worry and anxiety, and call for fresh efforts of adjustment to new environments on each occasion.

On the other hand, the absence of the father for long periods has a bad effect on the mental health of the family. The wife finds herself shouldering all the responsibilities relating to the management of the home and the upbringing of her children; her husband is not at hand to advise and assist her, neither can he fulfil his role as a father in any practical sense.

In these days the work of the housewife and mother is quite arduous enough even when her husband is at hand to help her, but when he is away the tasks which confront her are difficult in the extreme. The interruption of the normal marital relationships also has a bad psychological effect and must not be

overlooked. Much depends upon the mental and physical constitution of the mother of course ; some will be able to cope alone with all these family responsibilities in a manner worthy of the highest praise and admiration, yet even then the situation can never be as satisfactory as when the father is at home to play his part.

The fact that the absence of the father has a bad effect upon his children is well known. The father has a vital part to play in the upbringing of his children ; if he does not play this part the mental health of the children suffers inevitably in some way or other. A considerable amount of emotional instability in young recruits can be traced to the father's absence during the war years, and there is evidence to suggest that this factor continues to be one of the causes of juvenile delinquency today.

The solution to this problem is difficult to devise and still more difficult to put into practice.

I think all will agree that it is best that the family should accompany the soldier wherever he has to serve, provided that considerations relating to the military situation and climate, etc., permit this. If we accept this principle there are certain requirements which must be fulfilled if the mental health of the soldier and his family is to be kept at its optimum level.

First and foremost we must see to it that the married soldier is not posted to a new place of duty unnecessarily or too often. This statement may sound so obvious as to hardly merit discussion ; yet, in the past, frequent examples of such unnecessary postings have been quoted. Once we can offer the married soldier security of tenure in a particular place of duty amounting to several years, plus accommodation for his family, we shall have done much to offset a factor which has an extremely adverse effect on the mental health of the military community.

Secondly, we must consider the vexed question of accommodation for the soldier's family. Admittedly this matter is closely associated with the general housing shortage which affects the whole Nation. Yet the soldier is at a particular disadvantage because he is seldom more than a "bird of passage" in any particular locality so cannot obtain a house through a Local Authority in this country. Both at home and overseas attempts to solve the problem by setting up special communal camps for military families have been made. While such camps are certainly better than nothing, they constitute a most unsatisfactory environment for any family, and we must see to it that they do not become accepted as an easy way out of a difficult problem and a permanent feature of military married life.

Finally, we must do everything possible to assist the soldier and his family with regard to their travels around the world. Warning-orders concerning future postings must be issued in good time so that the soldier and his family may prepare for the domestic upheaval which is to follow ; and the soldier himself must be given adequate leave so that he may assist in the domestic preparations for the move. The problem of packing and transporting family goods and chattels must be eased by providing family quarters which

are fully furnished in the widest sense. Such quarters should be provided with all essential items, including crockery, cutlery, cooking utensils, linen, blankets, children's cots, cradles, perambulators and a full scale of nursery equipment. These items should be issued on loan to the soldier who would be liable for any loss or damage incurred while they were in his charge. The problem of the inevitable minority of "bad tenants" would be solved by providing an alternative and more frugal scale of "unbreakable" essentials. Provision for the journey itself involves many detailed administrative arrangements. Transport for the soldier, his family and all baggage must be provided between transit points, and adequate arrangements for meals and refreshments must be made to cover all stages of the journey. Arrangements for reception at the destination require particular attention. On arrival, the soldier and his family must first be provided with a cooked meal. The quarter must be fully prepared for occupation by the incoming tenants. It should be clean throughout, and curtains, linen, blankets, etc., should have been washed; a supply of hot water for baths and ablutions should be ready. Soon after her arrival the housewife should be given official detailed information, either directly or via her husband, concerning those matters which affect housekeeping and domestic life in the new environment. Such details include information regarding the sources of supply of food and fuel, the location of the nearest shops, schools, child-welfare centres and hospitals, and the provision of medical care.

The structure, design and furnishing of the family quarter merits detailed consideration. It must be borne in mind that a home, and not merely living accommodation, is to be provided. Every consideration must be given to the needs of the housewife, so that all modern improvements which aim to reduce her work and encourage good housekeeping must be incorporated. At the very least, the quarter must be in all respects fit for human habitation, which, by modern standards, entails proper structure, decoration, heating, lighting, ventilation, sanitation, bath, wash-basin, sinks, hot water system and modern food storage and cooking facilities. The problem of home laundering needs special attention. In this country well over 60 per cent of all washable domestic items are laundered at home; this work places a great strain on the housewife, particularly if she has young children to look after. The quarter must have sufficient space to enable her to carry out these tasks satisfactorily; there must be a plentiful supply of hot water, a copper is required, a special sink for laundry purposes should be provided, and there must be adequate arrangements for the drying of clothes and the use of an electric iron. Even if a cheap laundry service is provided there are still many items which the conscientious housewife will prefer to wash at home, and she should be given every facility for doing so.

The care and education of the soldier's child presents some special problems. Child welfare centres, day nurseries, nursery schools, primary schools, secondary schools and arrangements for "further education" are all being made available for the civilian population at Home. We must ensure that the soldier's child does not miss any of these facilities merely because his or her father happens

to be in the Army. Frequent change of school is a common cause of educational retardation, and the soldier's child is specially at risk to being retarded in this way.

It is inevitable that, owing to the exigencies of the Service, and for other reasons, every soldier is liable to be separated from his family for some part of his career. Provisions for the welfare of those families who are unable to reside in the soldier's duty station are therefore important. Such provision is not only important for the well-being of the soldier's dependants, but also for the mental health of the soldier himself. Geographical isolation tends to cause a soldier to magnify home worries to such an extent that his efficiency is impaired.

In concluding this Section I must reaffirm that much has been done to improve the welfare of the soldier's family in recent years, and I must admit that a large number of the important points I have discussed either have been, or are being, attended to. Nevertheless, we must bear in mind the standards at which we should aim, and must not be satisfied with "second best."

SECTION VIII.—THE MENTAL HEALTH OF THE MILITARY COMMUNITY DURING WARTIME

Once war breaks out the status of the soldier is immediately increased, and he suddenly finds himself specially important. Marked changes occur in the attitude of the Nation as a whole towards the soldier, and he is accorded preferential treatment. People go out of their way to entertain him, some places of entertainment offer him seats at reduced prices. The soldier is applauded in the Press and on the wireless. His friends and relatives openly admire and flatter him; the girls abandon their civilian acquaintances in his favour. Politicians woo him, because the necessary expansion of the Armed Forces make his vote a powerful factor to be reckoned with in an election.

All these things strengthen the soldier's conviction of worth, and he is propelled forcibly in the positive phase of mental health.

The aim of the military community becomes more obviously identified with that of the Nation as a whole, that of defeating the enemy and ensuring the country's survival. For this reason the soldier's work and training develops a more concrete purpose, and it becomes easy to endow even minor military tasks with a new found importance. This strengthens the soldier's will to work; it gives him an increased incentive and enables him to tolerate hardships more cheerfully.

During wartime, the soldier expects to be uncomfortable and is pleasantly surprised when he is not. Most difficulties and hardships are easily rationalized as being due to the war; grumbles and grievances are frequently countered with the question, "Don't you know that there is a war on?"

In addition, a large number of the soldier's relatives and friends are also in the Services, therefore the soldier finds himself identified with a large group composed of individuals who are "all in the same boat."

For these reasons it is easier in some respects to maintain the mental

health of the Army in wartime than it is in times of peace. This applies particularly with regard to the Regular Soldier, who, as a member of an experienced minority, acquires increased status in a community with an inexperienced majority.

On the other hand, because of the need for a rapid expansion of the Armed Forces the net of conscription is spread very wide, so that the "call-up" involves age-groups normally unaffected by peacetime conscription. This brings a train of factors detrimental to mental health. Older and less adaptable men experience radical alterations in their duties and rights. A greater percentage of married men have to leave their homes and families, and abandon their professions. Many men suffer reductions in income with consequent economic hardships to their dependants, and disappointments regarding their professional hopes. The influence of all these factors results in there being in the military community a large number of men suffering from various degrees of mental tension.

Overseas service in wartime produces additional causes of mental tension. Domestic and other worries become enhanced by distance. Isolation and homesickness, extremes of climate, unfamiliar hazards to health and physical hardships all add to the load of mental stress.

Last, but by no means least, war risks in themselves result in men being faced with the prospect or actual experience of acute personal danger. "Battle exhaustion" is the term now used to describe the condition of mental breakdown precipitated by battle conditions.

It is said that the aetiology of battle exhaustion is concerned more with the psychological background of the individual than with the actual circumstances of battle. Hence the prevention of this condition is concerned mainly with the basic facts of mental health already described in this paper, especially in connexion with the psychological and physical environment, personnel selection, man-management and the part played by medical officers, administrators, commanders and leaders in the maintenance of mental health.

The early detection, disposal and treatment of cases of incipient battle exhaustion, and the management and rehabilitation of fully developed cases, belongs more properly to the sphere of Army Psychiatry rather than Army Health. However, these matters have an important relationship with mental hygiene; in the recent war it was shown that much wastage of man-power could be prevented by the early diagnosis and simple treatment of these cases in forward areas. Consideration of the techniques involved do not come within the scope of this paper.

SECTION IX.—THE MENTAL HEALTH OF THE MILITARY COMMUNITY DURING TIMES OF PEACE

In peacetime, as compared with wartime, many factors having an adverse influence on mental health are lacking; but many beneficial factors are lacking also.

In peacetime the soldier and his problems tend to disappear from the

conscious day-to-day thoughts of the Nation. Once a war is over, national effort becomes wholly diverted to the re-establishment of peacetime routine, and the Army becomes an easy target for those who wish to effect economies in the national budget. Naturally enough, the Nation has become weary of war and military matters, and wishes to be concerned with them as little as possible.

For these and other reasons it is not easy to maintain the military community's conviction of group worth in peacetime.

Once the emergency of war is over the soldier's main incentive, that of defeating the enemy, is lost; for this reason the position of the soldier with regard to incentives becomes practically identical with that of the civilian. Matters concerning pay, general conditions of service and family welfare assume a relatively greater degree of importance than they did during the war.

But, if the soldier feels aggrieved on account of pay or conditions of service there is little he can do about it. On return to peacetime conditions the soldier takes stock of his personal circumstances and compares his position with that of his colleagues in civilian life. His wife and family aid and abet him in this stock-taking procedure, and will frequently question the wisdom of his decision to remain in the Army. This, too, is a normal occurrence in an immediately post-war period.

It is therefore important, for reasons of mental health, that members of the military community in peacetime should enjoy material circumstances and status which is not inferior to that enjoyed by those performing similar grades of work in the civilian community.

SECTION X.—SUMMARY

Concepts of Health in General.

- (1) The terms "positive health" and "optimum health" are discussed.
- (2) A dynamic concept of health, involving positive and negative phases, is elaborated and discussed.
- (3) It is pointed out that health is made up of two components, mental and physical, and that this paper is concerned with the mental component.

Concepts of Mental Health in Particular.

- (4) Five components of mental health are described :
 - (a) The ability to discharge mental tension.
 - (b) The effective functioning of the mental processes of cognition and memory.
 - (c) Intelligence.
 - (d) Morale.
 - (e) Moral capacity.
- (5) A dynamic concept of mental health, involving positive and negative phases, is elaborated and discussed.

Factors which Influence Mental Health.

- (6) Constitutional factors are discussed. It is noted that heredity is an important factor determining mental constitution, and that environment also plays a part.
- (7) The psychological environment is discussed in general, and under the following headings :
 - (a) Competence.
 - (b) Power.
 - (c) Worth.
 - (d) Security.
 - (e) Identification with the group and its aims.
- (8) The physical environment is discussed under the following headings :
 - (a) Physical health.
 - (b) Basic physical requirements :
 - (i) Food and drink.
 - (ii) Shelter.
 - (iii) Rest and recreation.
 - (iv) Sexual adjustment.
 - (v) Other physical requirements.

Personnel Selection.

- (9) "The rock on which good mental health in the military community is built is personnel selection."
- (10) A short history of personnel selection in the British Army is given.
- (11) The system of personnel selection used in the British Army today is described in outline and discussed.

The Employment of Individuals who are Potential "Misfits."

- (12) The characteristics of the following types of individual are discussed and suggestions are made concerning their employment or disposal.
 - (a) Dullards.
 - (b) Psychopathic personalities with antisocial trends.
 - (c) Other unstable personality types :
 - (i) The obsessional.
 - (ii) The hysterical.
 - (iii) The overanxious.
 - (iv) The paranoid.
 - (v) The cycloid.
 - (vi) The schizoid.

The Role of Medical Officers, Administrators, Commanders and Leaders with Regard to the Promotion and Maintenance of Mental Health.

- (13) The parts to be played by the following individuals are suggested and discussed :

- (a) Regimental Medical Officer.
- (b) Specialist in Army Health.
- (c) Specialist in Psychiatry.
- (d) Specialists in Surgery and Medicine.
- (e) Administrators.
- (f) Commanders and Leaders.

The Mental Health of the Soldier's Family.

- (14) Domestic difficulties in relation to family life in the Army are discussed, and the effects on mental health are stressed.
- (15) Suggestions concerning the welfare of the soldier's family are made.

The Mental Health of the Military Community during Wartime.

- (16) The fact that the status of the soldier increases with the outbreak of war is noted, and the effects on mental health are discussed.
- (17) The fact that a large number of older men are called up for military service during a war is noted, and the effects on mental health is discussed.
- (18) Other wartime factors affecting mental health are discussed.
- (19) The problem of "battle exhaustion" is considered very briefly.

The Mental Health of the Military Community During Times of Peace.

- (20) The fact that the status of the soldier diminishes once a war is over is noted, and the effects on mental health are discussed.
- (21) The question of the soldier's incentives during peacetime are considered.
- (22) It is noted that, for reasons of mental health, members of the military community in peacetime should enjoy material circumstances and status which is not inferior to that enjoyed by those performing similar grades of work in the civilian community.

My thanks are due to Lt.-Colonel. L. C. F. Chevens, R.A.M.C., Reader in Psychiatry, Royal Army Medical College, for his advice and encouragement, also to Dr. R. B. Stalbow, Principal Scientific Officer, The War Office (AMD 5. Stats), for supplying some of the statistical data.

REFERENCES

- BURKS, B. S. (1928) The Relative Influence of Nature and Nurture upon Mental Development. A Comparative Study of Foster Parent-Foster Child Resemblance. Twenty-seventh Year Book of the National Society for the Study of Education. Part I.
- GARRICK, T. W. (1949) The weekend habit, *Journal of the Royal Army Medical Corps*, **93**, 252-255.
- CARROLL, H. A. (1947) Mental Hygiene. Prentice-Hall Inc., New York.

- CARTER, H. D. (1940) Ten Years of Research on Twins. Contributions to the Nature-Nurture Problem. Thirty-ninth Year Book of the National Society for the Study of Education. Part II.
- CHEVENS, L. C. F. (1949) Personal communication.
- CURRAN, D., and GUTTMANN, E. (1943) *Psychological Medicine*. E. & S. Livingstone, Edinburgh.
- EWEN, J. H. (1947) *Mental Health*. Edward Arnold & Co. London.
- FRASER, R. (1947) The Incidence of Neurosis in Factory Workers. Medical Research Council, Industrial Health Research Board Report No. 98. H.M.S.O. London.
- FREEMAN, F. N. (1928) The Influence of the Environment upon Intelligence, School Achievement and Conduct of Foster Children. Twenty-seventh Year Book of the National Society for the Study of Education. Part I.
- GOODENOUGH, F. L., and MAURER, K. M. (1940) The Mental Development of Nursery School Children compared with that on Non-nursery School Children. Thirty-ninth Year Book of the National Society for the Study of Education. Part II.
- HILDRETH, G. (1940) Adopted children in a Private School. Thirty-ninth Year Book of the National Society for the Study of Education. Part II.
- HIRSH, N. D. M. (1930) *Twins; Heredity and Environment*. Harvard University Press, Cambridge.
- KARDINER, A. (1947) *War Stress and Neurotic Illness*. P. B. Hoeber Inc., New York.
- KENNEDY, W. P. (1947) Positive Health. Selected articles from the Ministry of Health Bulletins which have appeared in the *Pharmaceutical Journal*; collected and published in one volume by the Pharmaceutical Press, London.
- KLEIN, D. B. (1944) *Mental Hygiene*. Henry Holt & Co. New York.
- POZNER, H. (1950) Some aspects of post-war army psychiatry, *Journal of the Royal Army Medical Corps*, **94**, 38-47.
- REES, J. R. (1945) *The Shaping of Psychiatry by War*. W. W. Norton & Co. New York.
- (1946) Unfit on psychiatric grounds, *Occupational Psychology*, **20**, 125-131.
- REY, J. H., POND, D. A., and EVANS, C. C. (1949) Clinical electro-encephalographic studies of temporal lobe function, *Proceedings of the Royal Society of Medicine*, **42**, 891-901.
- SKEELS, H. M. (1936) Mental development of children in foster homes, *Pedagogical Seminary and Journal of Genetic Psychology*, **49**, 91-106.
- STRECKER, E. P., and APPEL, K. E. (1945) *Psychiatry in Modern Warfare*. The MacMillan Company, New York.
- War Office (1922) Report of the War Office Committee of Enquiry into Shell-shock. H.M.S.O. London, cmd. No. 1734.

MEDICAL ASPECTS OF SELECTION PROCEDURE

BY

Captain H. J. GROVES

Royal Army Medical Corps

THIS article is written to set out and clarify for those unfamiliar with medical selection the mysteries which surround the whole story of initial Pulheems assessment. It is hoped that it will not only serve this main purpose but also draw attention to two points which seem to be the weakest links in the chain of medical classification in the Army.

The first of these is the leakage of unfit recruits through the civilian medical boards' examinations. Mass miniature radiography could be expected to effect great economy here and protect large numbers of 18-year-old youths from the unnecessary hardship of surrendering their jobs, only to be sent home again after two weeks in the Army. More important still is the enlistment and initial training of seriously ill personnel, notably those with pulmonary tuberculosis. This could be stopped. This point will be enlarged on later.

The second point stressed is that both pre-service and initial Pulheems assessments, although simple enough in the majority of cases, become difficult and uncertain to a degree as soon as doubts arise in connexion with any given function. We have no prior knowledge of the man's capacity, his own story is not easy to evaluate and often it is only when he begins to run his race that he can be recognized at his true physical worth. For this reason every possible means of assessment, direct and indirect, is used in a Selection Unit, and an attempt is made to describe their multiplicity in this article. Such jumbled information must be correlated with the recruit's own often ill-authenticated history in the "electronic brain" of the Pulheems centre—the answer comes out on page four of Army Form F/Med. 1, *and is only a forecast*: in other words we must constantly expect to find that our assessment was a conscientious guess into the future, an attempt to predict the recruit's capacity to improve and his ability to compensate for his disabilities. Not uncommonly, therefore, initial Pulheems are found to be incorrect after a few weeks of training. P.S.O.s and other colleagues please note, and continue to forgive us our trespasses as we forgive . . .

It is proposed to describe the system in use for medical selection in No. 1 Training Bn. (Sel) R.A.O.C. This is a fairly typical Selection Unit with no other functions, receiving a fortnightly intake from civilian life.

The intake comprises between 450 and 480 National Service men, and a small number of Regular Army Volunteers.

They spend fourteen days in the Unit, devoted to :

- (a) Medical Classification.
- (b) Personnel Selection Procedure—testing, interview and allocation to a trade.
- (c) Kitting out and a small amount of introductory regimental training.

In addition to the above types of recruit there are a varying number of men reallocated from other arms as being unsuitable for training in the units in which they were originally enlisted.

To obtain a full perspective of the problems of medical classification it is essential to keep in mind the various trades and allocations into which all these recruits must be canalized during selection. For the Royal Army Ordnance Corps these are :

- Potential Officer (O.R.1)
- Potential N.C.O. (Both Regt. Duty and Technical Instructor)
- Ammunition Examiner
- Clerk Tech.
- Clerk G.D.
- Storeman
- Vehicle Mechanic
- Driver Mechanic
- Driver Class 3
- Shoemaker
- Tailor
- Textile Refitter
- General Duties
- Transfer to C.R.M.P.

A few are reallocated to R.E., ACC., R.A.M.C., etc., as being more suitable for specialist duties in these Corps.

A detailed job analysis will not be feasible here, but from these varied allocations it can be appreciated that a recruit's physical ability to complete his training in a given medical category depends very largely on the employment to which he is to be put. For example, a clerk with foot defects classified L7 is likely to make the grade whereas a storeman or general duties orderly with similar category restriction may easily be made worse by his training and become a complete liability.

Having indicated briefly the importance of such apparently non-medical considerations, it will be interesting to run quickly through the whole of recruiting medical procedure, returning to the details of medical selection later.

RECRUITING MEDICAL PROCEDURE

Pre-service Pulheems Assessment

This is the responsibility of the Ministry of Labour and National Service Civilian Medical Boards.

The recruit, examined about two months before call-up, is allocated his pre-service Pulheems assessment, but far more important is the decision as to his fitness or otherwise for service. On this point one must note that the

numbers of recruits found unfit for service when they first arrive in this unit is disturbingly high. Judging by the invaliding disabilities found, many of these unsuitable men need not have been called up. The following examples spring to mind.

(a) *Visual Defects*.—Cases of virtually monocular vision and of myopia and hypermetropia worse than the minimum standard laid down for entry to the Army are called up only to be rejected by the military ophthalmologist. This should be entirely avoidable and the remedy is obvious.

(b) *Lung and Heart Disease*.—At present a routine chest X-ray is available only to recruits examined by the London Medical Boards. From the rest of the country arrive men suffering from every imaginable intrathoracic disease—active pulmonary tuberculosis, bronchiectasis and mitral stenosis being the commonest. Occasional cases of coarctation of the aorta have been seen, a few with congenital heart disease, pulmonary fibrosis with extensive pleural thickening and adhesions, and one very interesting case of osteoclastoma of a rib.

Clearly steps should be taken to ensure that at least a miniature film of every chest is taken before call-up.

These major calamities are stressed because they are avoidable. There are many other causes of incorrect classification which could not be so easily remedied, but luckily these errors are not so far-reaching in their effects on the individual. For instance :

(c) *Psychiatric Disabilities* do not seem to present themselves at Civilian Medical Boards in many cases, and even if they did, accurate assessment of the S factor and fitness for service would be very hard to make without the opportunities available for observation in the Army.

(d) *Locomotor Disabilities*—function is hard or even impossible to assess accurately until training starts in many cases. Anatomical deformity, if present, is a pointer, but frequently gives an entirely false impression of what the man is able to do.

(e) It should be mentioned here that in the past large numbers of recruits were found to be of such lowly intelligence as to be assessed M7 by the Army Psychiatrist. There is no employment at the present for these men and they were all returned promptly to civilian life, a cause of great inconvenience to the man and expenditure to the tax-payer.

Initial Pulheems Assessment

This is the medical function of selection units.

For all the reasons given above the pre-service Pulheems classification must be regarded as only a very rough guide. In selection units we are forced to consider not only the correct Pulheems (making allowances for conditions of service and training in the relevant arm of the service) but also in an unnecessarily high proportion of cases, the question of whether the recruit is fit for any form of service at all.

The object of the initial Pulheems assessment is to readjust as far as

possible the pre-service values so that the P.S.O.s can allocate a trade suited to the man's physical and mental capacity. Time is therefore short and decisions must be made by D 6 as far as is possible, D 8 at the latest and it must be realized that intelligent guesswork is the order of the day. Fortunately we have many aids which are set out below under Pulheems Centre procedure.

Service Pulheems Assessment

On leaving this unit on D 14 the recruit undergoes basic training—regimental and technical—at an A.B.T.U. for ten to twelve weeks. By the end of this time all defects and deficiencies should have become apparent. Recruits shown to have serious physical and psychiatric disabilities have been boarded out of the Army, and lesser defects have been treated and/or allocation to trade or duties has been suitably modified. (It is the aim of Initial Pulheems assessment to reduce to a minimum the number of these cases in which for medical reasons a man proves unable to complete training in the job he is given.)

Recruits' physical efficiency tests have been carried out, and with the results of these tests and the guidance of P.T. instructors in doubtful cases the M.O. can make his final adjustment of the Pulheems assessment. This assessment is based on objective knowledge of the recruit during training and the *trained* man is *correctly* classified.

Pulheems Centre Procedure

Up to this point we have been discussing the reasons why an initial assessment of Pulheems must be made immediately on enlistment, and the more important factors which influence the judgment in making it.

The detailed chronological procedure used in this unit can now be described.

Eyes.—All recruits with E factor below 3 in either eye are referred to the nearest military ophthalmic centre. In the earlier life of this unit several thousand recruits were tested by the M.O., with the standard type cards and the visual acuity so assessed was compared with that recorded by the Civilian Medical Boards. There was never a significant variation. (It must be realized that the simple assessment of visual acuity has little bearing on fitness for service—it is the refractionist's findings which decide this point. This fact does not therefore contradict the earlier remarks made in connexion with erroneous enlistments.)

In the light of the above experience we accept the civil assessment as a standard for referral to the military ophthalmic specialist. It is a simple matter therefore to scrutinize the Fs. Med. 1 a week before the intake arrives and appointments are made in advance for the examination of all men with defective vision. An average of 25 per cent here require testing for glasses.

Dental Examination.—A routine examination is made of all recruits on D 2. Any dental work urgently required is subsequently carried out by appointment at the Dental Centre allotted to the unit.

Medical Examination.—This is conducted by squads of twenty men at a

time. All recruits are examined during the first five working days of the intake. In this connexion it must be pointed out that the recommended minimum time per man for this examination is seven minutes. In practice, the actual time available is about three minutes each, and one is constantly cutting this short in order to save enough time to examine properly any abnormalities noticed. Under such conditions, questioning and inspection are the most useful clinical methods of examination.

One can exclude rapidly :

- Skeletal deformities
- Postural deformities
- Anatomical locomotor defects
- Hernia
- Hydrocele
- Imperfectly descended testicle
- Varicose veins
- Valvular disease of the heart
- Gross anæmia
- Hearing defects
- Eye and ear disease
- Skin disease
- " Physiological underdevelopment," i.e. retarded physical and sexual development.
- Non-tropical conditions in general

Rarer and interesting conditions occasionally come to light while psychiatric disabilities are seldom detected unless a definite history is volunteered by the examinee.

Broadly speaking, it is safe to say that in the absence of any of the above conditions, a man of satisfactory height and weight will be assessed PULH -- MS, TWO, pending the result of M.M.R. carried out on D 8 (EE factors are predetermined, or will be finally fixed by the Military Ophthalmologist).

When abnormality is found it may be possible to give an assessment on the spot, or the medical officer may prefer to await the results of X-ray (chest, bones, joints) or the advice of a specialist. It is useful to bear in mind that often a difficult decision is made easy by waiting a few days and observing the man under training in his P.T. marching and games. Is it better to wait than to dismiss the man with too high an assessment, or, at the other extreme, an unreasonably low one which precludes him from doing the best job open to him in the army ?

Visiting Specialists.—*Physical Medicine Specialist* : When doubt persists in the medical officer's mind as to the correct assessment of a disability or a physique, the recruit is " remanded " for the Command Specialist in Physical Medicine, who visits the department when all the recruits have been seen and necessary investigations carried out. This is usually on D 7. The Physical Medicine Specialist allots the factor in question, or recommends discharge from the Army if indicated. Recruits with gross undernutrition or poor development which he considers to be capable of improvement are sent to the

Convalescent Wing, Royal Victoria Hospital, Netley, for four to six weeks for physical development, extra rations, etc., before initial Pulheems are fixed.

The chief criteria in selecting these cases are a poor athletic record combined with a *bony*, underweight physique and poor posture. In borderline cases, the home town, district and the physique of the recruit's parents are a good guide in deciding whether he is likely to put on weight.

Army Psychiatrist: Between 10 and 20 per cent of each intake are interviewed by the Command or Area Psychiatrist. These are selected for interview by the Medical Officer and the Personnel Selection Officer. The latter selects chiefly those showing lowly intelligence on testing, or instability at interview.

Specialists at Military Hospitals.—All recruits in need of surgical treatment for minor defects (e.g. hernia, imperfectly descended testicles) are referred to the near-by military hospital where they are put on the waiting lists for operation. Their Pulheems are usually left at P3R pending the results of treatment, and they are allowed to proceed to their basic training within the restrictions of this lowered category.

A similar course is taken with E.N.T. defects, where not only treatment but also advice may be needed in fixing the medical category. For example the detailed prognosis of a chronically infected middle ear may be needed or the results of an audiogram before P or H can be allotted.

Mass Miniature Radiography.—All recruits have a chest X-ray on D 8 and abnormals are investigated by full-sized X-ray and screening. Where necessary a specialist's opinion is obtained.

Of a rough average of 15 abnormals per intake, 2 or 3 may be admitted to hospital with pulmonary tuberculosis or other equally serious illnesses, 2 or 3 may be assessed P 8 and recommended Medical Board action (bronchiectasis, mitral stenosis, etc.) and the remainder are found fit and returned for training.

Additional Aids in Assessment.—Important adjuncts to the normal Pulheems centre procedure outlined above are morning sick parade, the unit foot orderly and the liaison between medical and personnel selection officers. These will repay more discussion.

(a) *The Morning Sick Parade*: Doubtful cases are followed up here, deferred decisions made, and errors of judgment and prognosis are corrected when the man's reaction to army activities becomes established.

More important still are the many complaints which are never mentioned by the recruits in the rush and scramble of the routine medical examination. At sick parade the peptic ulcer, the chronic bronchitis, the asthmatic, and, most essential of all, the apparently normal feet which give way unexpectedly when drill and marching begin, all come up for sober and critical consideration.

Here, too, is discovered the emotionally unstable. As pointed out above, he is nearly impossible to spot at "Pulheems," but when he is given the chance to describe his aches and pains, his headaches, dizzy spells, blackouts and tremblings, it is simple enough to single him out and refer him early for a psychiatrist's opinion.

For these reasons sick parade at a selection unit is inclined to be a large

and lengthy affair each day, but it would be false economy of time to attempt to reduce it.

(b) *The Trained and Conscientious Foot Orderly* : The unit chiropodist not only treats those cases referred to him by the medical officer, but goes out to keep a watchful eye on training, P.T., etc., and by initiative and good sense he brings up for medical attention men with limps, flagging feet or uncomfortable boots which are a bad fit. This is haphazard, but in practice works well, and pays a large dividend in avoiding foot strain, and in correcting the initial Pulheems assessment if necessary, before selection is completed.

(c) *Liaison between Medical and Personnel Selection Officers* : The P.S.O.s concern themselves with the recruit's ability to do the job the Army requires of him. In allocating his trade or employment, therefore, a clear picture of the man's physical capacity in the broadest sense is required, and co-operation with the medical department must be correspondingly close. P.S.O.s seem to develop a quite keen medical insight, and in their interviews which last a leisurely twenty minutes, much may come to light missed by the M.O., which can affect the Pulheems assessment. This additional information relates chiefly, but not only, to M and S factors, and is often extremely useful to the medical officer and the Army psychiatrist.

In yet another way P.S.O.s help us with our problem cases. Whenever the initial assessment of Pulheems is deferred for a decision by the physical medicine specialist, we are informed by the P.S.O. beforehand what trade or employment the recruit in question is *likely* to be trained in, *if* his medical category will allow it. In this way we are able to assess the man *as for a specific job*, and not merely within the wide generalization of the standard Pulheems pamphlet. As previously pointed out, it is not the man's *present* capacity which matters, as much as his *ability to get through his training in the job he is given*. This is why the P.S.O.s can help us so much in the doubtful cases.

Summary of Pulheems Centre Procedure

Initial Pulheems are fixed for all but a few of each intake by D 8 and represent the integrated findings of :

- (1) The Medical Officer only, in the majority of cases.
- (2) The Physical Medicine Specialist.
- (3) The Army Psychiatrist.
- (4) The Ophthalmic Specialist.
- (5) Other Specialists, e.g. medical, E.N.T., orthopædic, skin, etc.

One or more of these specialists is involved in quite a high percentage—up to 40 per cent.

DISPOSAL OF RECRUITS

To complete the story it is interesting to consider the final disposal of the various medical types we have been considering.

(1) The great majority are posted to A.B.T.U.s, to commence basic training in the varied trades of the R.A.O.C.

(2) A few go to P.E.C. for elementary educational groundwork, others to Corps of Royal Military Police, Army Catering Corps and some are selected for specialist jobs in other Corps.

(3) A certain number are relegated to the unit's holding platoon. On the medical officer's authority men are held awaiting specialist's appointments, discharge or medical board action, or because they are under treatment.

(4) Certain men are rejected from the Army. This may be effected on the following grounds :

Completely Unfit for Any Form of Military Service, i.e. men assessed degree 8 under any of the Pulheems qualities. Here the Civilian Medical Board casts its net too widely—they should never have been called up. These men are brought before the Standing Medical Board in Aldershot with a view to invaliding.

Unemployable at the Present Time, Under the Existing Regulations.—Men classified degree 7 under any of the Pulheems qualities. Some of these men are not intellectually capable of training in the more sedentary trades such as clerk, and are physically unable to do regimental training such as is required in the more bodily active jobs in the R.A.O.C. These men are submitted by the P.S.O. to the War Office (M.P.3) for disposal instructions and we are authorized by M.P.3 to release most of these from the Army. The rest are usually transferred to other corps which can cater, in employment, for their lowered category.

Unsuitable Regular Recruits.—Comprehensive instructions for the disposal of unsuitable regular recruits are in force, but briefly, recruits for the regular Army must satisfy more stringent requirements, and are not accepted at the present time below any of the PULH — degrees 3, or MS degrees 2.

This account has taken us through the complete cycle of activity in the unit described. The following statistics may be found of interest in view of the fact that we receive here about one-tenth of the total National Service intake of the Army. It is essential, in evaluating these figures, to bear in mind that by comparison with the "teeth arms," we are allotted by the Ministry of Labour and National Service a high proportion of men who are below the average medical standards.

(1) *Analysis of Intake No. 58*

These figures show the complete medical assessment of one fairly typical intake during the summer of 1950. Unusual features of this intake were the small number with upper limb abnormalities, somewhat fewer cases of Scheuermann's disease than we are accustomed to seeing, and the small number referred to the psychiatrist by the medical officer. A more representative figure for the latter would have been fifteen.

TOTAL RECRUITS, 447. TOTAL ASSESSED BELOW P.U.L. 2.—78, i.e. 17 per cent.

Assessed P 3—55 recruits. Diagnoses made in these cases were :

Strabismus and/or amblyopia	21	Cardiac murmurs (no	
Underweight	15	proof of organic di-	
Poor physique	15	sease found) ..	3

Obesity	7	Scheuermann's disease	2
Bad posture	4	Imperfectly descended	
Postural kyphosis	3	testicle	2
		Funnel chest (severe)	1

It must be realized that many recruits were downgraded for more than one reason, which accounts for apparent discrepancies in the above sets of figures.

Assessed P 5—2 recruits. Diagnoses : Otitis externa 1
Severe acne 1

Assessed P 6—3 recruits. Diagnosis : Hypermetropia greater than + 7
dioptries in each eye 3

Assessed P 8—5 recruits. Diagnoses : Duodenal ulcer 1
(These men were immediately boarded out of the Army) Hypermetropia 1
Myopic astigmatism 1
High myopia 1
Amblyopia (virtually monocular) 1

Assessed U 3—2 recruits. Diagnoses : Old fracture of left wrist with subsequent growth deformity .. 1
Congenital deformity of right thumb 1

Assessed L 3—8 recruits. Diagnoses : Flat feet 3
Hallux valgus 2
Hammer toes 1
Varicose veins 1
Recent fracture of ankle 1

Assessed L 7—2 recruits. Diagnoses : Flat feet with genu valgum .. 1
Hallux valgus (severe) 1

Assessed L O—1 recruit. Diagnosis : Severe flat foot with gross peroneal spasm. (Was later made L 8) .. 1

Psychiatric Summary

Interviewed by Command Psychiatrist—58

Of these six were referred by M.O. the remainder by the P.S.O.

Assessed M 3 .. 6
S 3 .. 2
M 7, S 3 1
S 8 .. 1 (Medically Boarded)

Total = 10, i.e. $2\frac{1}{2}$ per cent. of intake below M, S, 2 (an unusually good figure)

Mass Miniature Radiography Findings :

Abnormals on miniature film—16

On full-sized film these were made up as follows :

Pulmonary tuberculosis	2
Old healed pulm. tub.	2
Normal chests	12

(2) Medical Rejections

During the twelve months ending August 31, 1950, the following medical rejections took place as a result of Initial Pulheems assessment.

Medically Boarded—85, comprising (K.R., p. 390 xi (b))	49 assessed P 8 1 „ U 8 9 „ L 8 26 „ S 8
Released as unemployable at the present time, 95 comprising (K.R. p. 390 xi (a))	15 assessed P 7 1 „ P 6 (Regular enlistment) 19 „ U 7 1 „ L 7 1 „ H 3 (Regular enlistment) 8 „ M 3 (Not required by Pioneer Corps) 47 „ M 7 3 „ S 3 (Regular enlistments) 10 „ S 7

Total number of recruits for the year was 9,977.

It is interesting to compare these results with those obtained over the previous corresponding twelve month period, when 160 men were medically boarded, and an equal number released as “unemployable at the present time.” The total intake over the years was strictly comparable. A very striking improvement is here quite obvious, and the inference that a higher standard of recruit is now reaching us is further borne out by a study of intake summaries.

	Year ending	Aug. '49	Aug. '50
Total below P, U, L, TWO	..	25–35%	15–25%
Total below M, S, TWO	..	7–10%	3–7%

It seems reasonable to draw the conclusion from these findings that the primary sifting of recruits for the Army by Civilian Medical boards is becoming increasingly effective as judged from the point of view of the R.A.O.C. in particular, and that with a tightening up in firstly, ophthalmic cases and secondly in the matter of pre-service chest X-rays, the medical standards of recruits reaching us could be expected to attain a satisfactory level.

BIBLIOGRAPHY

- (1) Administrative Instructions to Selection Units and Army Basic Training Units. 20/MISC/2875(MP3)—December 1948. W.O. Code No. 4056
- (2) Pulheems: A System of Medical Classification for the Fighting Services. 24/GEN/2802. (AMD 5)
- (3) The Application of the Pulheems System of Medical Classification to the Army. W.O. Code No. 1757
- (4) W.C.L. BM/553/48 (AMD 5) 25.4.49.
- (5) Selection Procedure at ABTU/SEL Units—Instructions for Personnel Selection Officers—W.O. S.P.1 (b).
- (6) Instructions for the Medical Administration of Officers and Other Ranks 1950. W.O. Code No. 5634.

A diagram is appended to show the medical administration of recruits at the present time, commencing with registration for service and following their progress up to the point of commencing basic training.

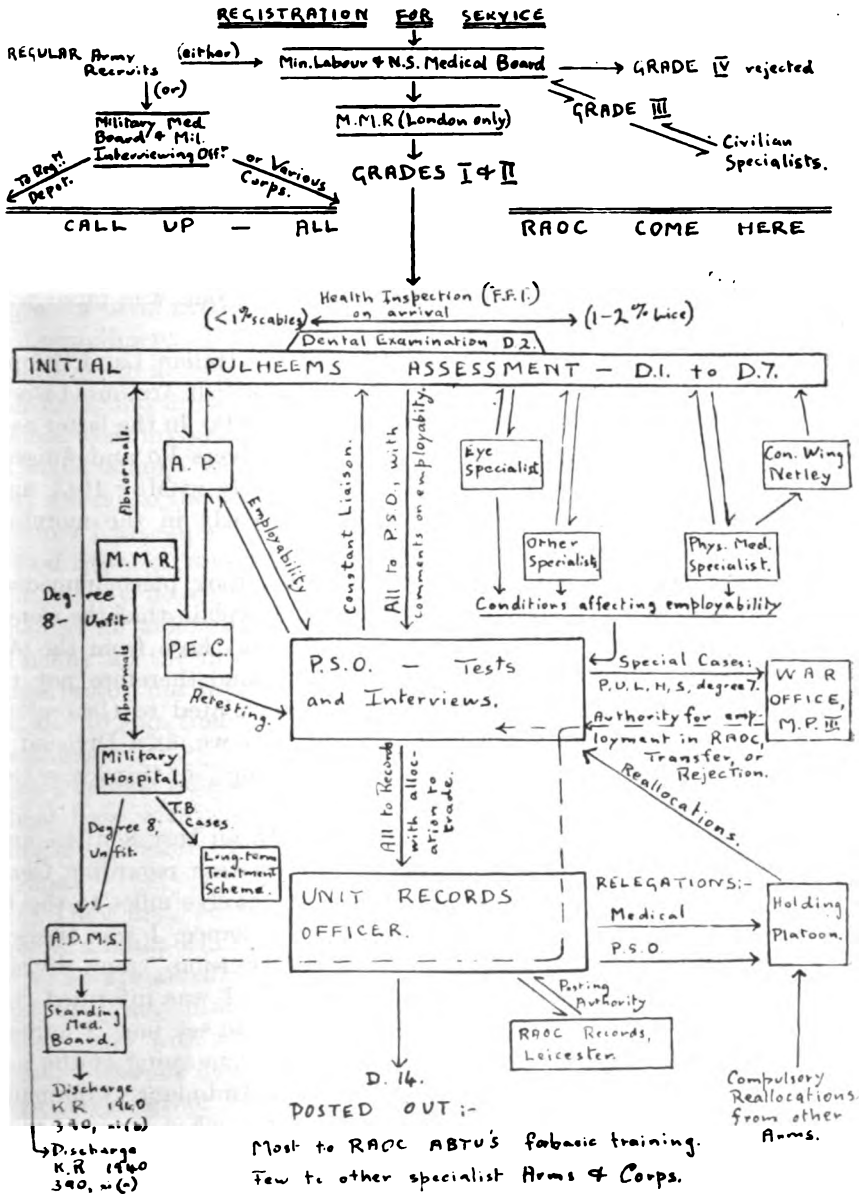
Everything below the double line marked “Call Up” takes place during the 14 days spent in the Selection Unit.

Abbreviations :

A.P. Army Psychiatrist.

P.E.C. Preliminary Education Course.

Con. Wing The Convalescent Wing, Royal Victoria Hospital, Netley.



THE UNEXPECTED

BY

Lieut.-Colonel J. C. BARNETSON, O.B.E., M.B., Ch.B.Ed.

Royal Army Medical Corps

It has been said that one should always be prepared for the unexpected and from what happened during my tour of three years, as Assistant Director of Medical Services of the Sixth British Armoured Division, during the recent war, I can substantiate the saying. What I have to recount here is one of the instances, albeit probably the most important, when one was faced with a situation one did not expect.

To the reader, who may not be familiar with the Italian Land Campaign (1943-45), it will be relevant to know that the Sixth British Armoured Division broke out through the Argenta Gap, South of the river Po, in the latter part of April 1945. The division crossed in succession the rivers Po and Adige and found itself knocking at the back door of Austria early in May 1945, and in fact entered Klagenfurt, the capital of Carinthia, early in the morning of May 8, 1945.

This account is concerned with an event which took place immediately after our arrival in Southern Austria. I should also explain that the elements of the German Forces which opposed our entry were those from the Army Group, South-East (i.e. that fighting in Yugoslavia), and therefore not those of Hitler's Armies in Italy which had already capitulated to General (now Field-Marshal) Alexander. I might also add here that we, as a Division, had little or no information as to the administrative "set up" of this Army Group or what we were likely to find in Austria.

As I have said we entered Austria from the South on May 8, 1945, and in the late afternoon of that day, while seeking information regarding German hospitals in the area, at a place called Veldem some twelve miles to the West of Klagenfurt, I was asked by an innkeeper if, by chance, I was the senior medical officer as he put it, of the "Panzer Hund Division" (our divisional sign was the Mailed Fist). On admitting that I was, I was informed that a senior German Medical Officer would very much like to see me. I agreed to do so and a meeting was arranged for ten o'clock next morning at the inn.

Next morning, accompanied by my senior Field Ambulance Commander, I proceeded to the inn and arrived at the appointed time where we were met by the innkeeper. He led us into the garden at the rear of the inn, overlooking the lovely Wurther See, where an astonishing sight met our eyes. Drawn up in line, headed by a grey-haired old gentleman in the uniform of a medical general

of the German Army, were a row of German officers, immaculately dressed in close-fitting tunics, breeches and jack-boots. The general, who turned out to be the Director of Medical Services of the Army Group, South-East (which was still fighting in Yugoslavia against the Russians), was complete with monocle, gloves and cherry stripes down his breeches, introduced himself and proceeded to explain who he was. He then introduced the other officers who were lined up, who proved to be part of his staff and the senior administrative medical officers in the area, i.e. the medical base for Army Group, South-East. This was "set up" in the main in the hotels round the Wurther See but it included a number of hospitals in Klagenfurt and its immediate surroundings. There were in all some 15,000 beds of which approximately 80 per cent were occupied. Evacuation from Yugoslavia was by rail and casualties were still arriving daily by ambulance train.

The general, having got the introductions over and having explained the position, then asked if I really was the senior British Medical Officer, seeming to doubt, what obviously appeared to him, my then youthful looks. I remember being not a little nettled at the time over this but have since come to regard it as a compliment. I assured him that I was, whereupon with great ceremony he asked me to accept the surrender of the medical base of the Army Group, South-East, and all that it contained, and what were my orders.

What were my orders ?

I could almost hear the field ambulance commander saying to himself "that will make the colonel think," which it did, furiously.

Before I attempted to give any orders I asked two questions—what was the food situation and what was the medical store situation within the base. Unfortunately no very satisfactory reply could be elucidated and so I had to plan on an indefinite basis.

Luckily all the interchange of conversation had been conducted through an interpreter, our invaluable innkeeper, and the time lag caused thereby enabled one to gain time to think. The thoughts which passed through my mind were these :

(a) I cannot take over, in the accepted sense, the running of the German Medical Base with the personnel at my disposal and at the best I can only supervise, therefore, the existing German Medical Administration will have to continue.

(b) They may be running short on rations for both patients and staffs, therefore a brake will have to be applied on these as I know the division cannot help as we are already stretched to feed ourselves.

(c) They may also be running short of medical stores, including drugs and dressings and with my own commitments and the meagre resources at my disposal I cannot help till the Corps establish a medical store of reasonable proportion in either Northern Italy or Austria.

(d) Having had experience of a German (Russian) hospital in Northern Italy, of which, on capture, either to drown their sorrows or toast their captors the staff and patients proceeded to get most gloriously drunk at the expense

of the hospital wine store, I realized steps would have to be taken to prevent this sort of thing.

(e) Lastly the use of the Nazi salute and the accompanying "Heil Hitler" would have to cease immediately.

These thoughts and conclusions enabled me to frame my orders which I was in a position to give at the termination of the conversation; they were brief and on the following lines.

(a) The German Army Medical Administration would continue to function as it existed and I would hold the Director of Medical Services Army Group, South-East, responsible to me for this. I would put a senior N.C.O. (Royal Army Medical Corps) in each hospital as a British Military Hospital Commandant, to see that my orders were carried out. (I could not spare British medical officers to do this as they were all committed doing their own job of looking after our own troops.)

(b) Ration stores in hospitals would be strictly supervised and the ration scale which would be notified at an early date strictly adhered to. In the meantime rations would only be issued in the presence of the British N.C.O.

(c) Drugs and dressings would be conserved as far as was compatible with the adequate treatment of the patients.

(d) All alcohol would be kept under lock and key and would only be used on medicinal grounds. The key of the store would be kept by the British N.C.O.

(e) The normal German Military salute would be used from now on in all German medical installations in the base. The use of the Nazi salute and the accompanying "Heil Hitler" would cease forthwith.

I impressed upon the general that the German medical services would have to live on their own fat particularly from the point of view of rations and drugs, dressings, etc., as I would not be in a position to help them to any degree for some time to come. I also promised dire penalties if my orders were not carried out.

Having received my orders the general and his entourage saluted, bowed and disappeared. I might add here, that the transport used by the general was a Volkswagon and not as I had hoped a high-powered German car which would have been liberated with great celerity. I did, however, achieve my aim in this direction that evening and I became the proud possessor of a very smart Mercedes-Benz.

During the course of the next three weeks I visited in turn each of the thirty odd hospitals round the lake and in the vicinity of Klagenfurt and was agreeably surprised in the way they were run. They were not up to the standard of our own hospitals but in some instances not far short of it. The size of hospital varied from the small forty to fifty bedded hospital to one large two thousand bedded hospital. These hospitals were staffed in the main by Austrian personnel but the commandants and certain key personnel were almost invariably German. The German and Austrian nurses were augmented by local Sisters of Mercy. The discipline of both the staff and the patients was

excellent and to see a German soldier "lying to attention" in bed had to be seen to be believed.

I found with rare exception that my orders were being carried out absolutely and I was relieved to find that both the ration and medical store situation was far better than I had hoped and with strict rationing and reasonable conservancy of drugs, dressings, etc., would last for upwards of three months. I found also that the British Military Hospital Commandant system was working well and the N.C.O.s were enjoying it. Peculiarly enough the Germans accepted the position without comment.

Before concluding I would like to say that for the first three days after we got into Austria and I had assumed responsibility for the German Medical Base, we received ambulance trains daily from Yugoslavia each full of German casualties. This, as can be realized, was a somewhat peculiar position to be in, that is, to be responsible for looking after German casualties, in a German Medical Base, while fighting was still going on and the casualties received were being inflicted by our Allies. It should be pointed out here, that owing to bad communication in Yugoslavia it took some three or four days before a complete "cease-fire" on this front was achieved.

I will conclude by saying I was greatly impressed by what I saw of the German Army discipline and although the Director of Medical Services Army Group, South-East, was ultimately put behind bars for other reasons, I had no quarrel with him in his own discipline, his enforcement of discipline or his medical administration.

FUTURE MEDICAL OFFICERS FOR THE ARMY

BY

Colonel R. H. ROBINSON, T.D.¹
A.D.M.S. Home Counties District

INTRODUCTORY

THE purpose of this paper is to set out why recently qualified medical practitioners, with little or no Service experience, will not consider the Army as a career, and why those with wartime or almost completed "National Service" experience in the Army will not consider the possibility of taking short service commissions with a view eventually to permanent regular commissions. Having found and set out what are, or may be, the stronger counter-attractions of a civilian medical career, or the adverse or discouraging circumstances of life in the Army, it is hoped that it may be possible to make some useful suggestions as to how the factors working against the appointment of medical officers in the Regular Army may be overcome. Further, it may be possible to bring out why it is that so many men who have set out to make careers in the Army now want to resign their commissions or resign prematurely, even at what would appear to be considerable financial sacrifice.

It should be noted that this paper was originally compiled and completed a year before the International Situation made it necessary for the Government to announce increases in pay for officers (excluding medical officers of the R.A.M.C.) with effect from September 1, 1950, and it has been revised in the period subsequent to September 1, 1950 and before the publication of new rates of pay for medical officers. It may be that the new rates of pay will be sufficiently attractive to start a reasonable flow of applicants for commissions in the Corps; on the other hand time may prove that the increases are insufficient or that factors other than financial will require attention in order to attract suitable doctors into the Army.

The rapidly diminishing number of Regular medical officers of the R.A.M.C., and the small number of wholly suitable candidates for regular commissions (permanent or short service) to replace them, make it that in a very short

¹*Extracts from a note by the Director-General A.M.S. :*

I have read your paper with great interest and I congratulate you on the thought you must have devoted to it.

I would suggest that you should forward it to the Editor of the Corps Journal for publication because I would like all officers to see the views of an independent observer who can see things from a different angle from the Regular Officer.

time the Medical Services of the Army will be comprised largely of senior officers, many of whom may have to be retained in full-time employment beyond the dates at which they could or should retire. This will be a serious state of affairs for the Army as a whole ; there will be no young men gaining the necessary experience for ultimate command and administration ; as time goes on there will be few senior officers left, and there will be few replacements, so that the R.A.M.C. will consist of young short-service commissioned officers, and regular and short-service commissioned non-medical officers. Eventually the Army Medical Services might lose much of their old power and importance, probably most of their independence and freedom, and may come more and more under the control and orders of the laity through lack of experienced medical officers. It may be that in due course more and more administrative powers and powers of command of medical units will fall into the hands of non-medical officers, so that medical officers will be but servants. There will be a speedy retrogression to the pre-1898 days, and the ground fought for and won by our forefathers of fifty-odd years ago will be lost. The position now, and the outlook for the future, seem to be so serious that drastic steps may have to be taken to attract young medical practitioners into the R.A.M.C. as a career.

This paper will be divided into five parts :

- Part I. The factors which influence young medical practitioners against the Army as a career.
- Part II. Some suggestions to counter these factors.
- Part III. On propaganda, inducements, etc.
- Part IV. An Army Medical School.
- Part V. Integration of the Medical Services.

PART I.—THE FACTORS TO BE CONSIDERED

The factors which influence young medical practitioners against the Army as a career may be considered under several headings :

- (1) Financial.
- (2) Social and domestic.
- (3) Lack of spirit of adventure and other such qualities.
- (4) Education of the family.
- (5) Discipline and responsibility.
- (6) Professional.
- (7) Military stations and training.

(1) *Financial*.—Financial considerations are much to the fore when a man has to decide between a civilian and a military career. Some hold that pay and quarters are the keys to the situation, and that if a young doctor can see that his pay and allowances, together with retired pay, can be brought into line with what he would expect to be able to get in civilian practice, and if he could be assured of a quarter for his family, then the serious shortage of doctors for the Army would be overcome.

It is agreed that pay, allowances and quarters are important considerations,

and the improvement in them will go a long way towards encouraging men to join the Army ; but improvements in these alone will not result in improved recruitment. Times have changed ; the average doctor, when considering between Army and civilian life, must be sure that, if he enters the Army as a career, his net financial reward will not be less than he would get in civilian life. At present he feels that civilian practice will, in the long run, pay him better because he can earn his full pay for a longer period, his cost of living can be regulated much more, his general non-professional expenses are or can be less, and he can maintain professional (medical) efficiency to a greater degree. In addition, he now looks for greater financial compensation to more adequately cover the cost of frequent moves, the maintenance sometimes of two domestic establishments, increased cost of providing suitable education for his children ; high cost of living in many overseas stations, liability for British rates of Income Tax in overseas stations where high cost of living may be related to low local rates of taxation ; separation from family and in some cases from the normal amenities and comforts of home life. He looks for more financial consideration for being stationed in climates which are arduous, disagreeable or unhealthy. He is not unmindful of the fact that he may have valuable stores and equipment placed in his charge, and that carelessness and/or dishonesty on the part of others working under him may result in financial penalties.

(2) *Social and Domestic*.—These are important factors ; these days there is a great tendency for men to get married in their medical student days or soon after they qualify ; so that a young doctor today is saddled, early in life, with family responsibilities, and he cannot contemplate a career in which, right at the outset, he may be separated from his wife for long or short periods, may go overseas, and may be subjected to frequent changes of accommodation.

Quite apart from the expenses of moves, and the general uncertainty of obtaining houses or quarters, the young wife would not tolerate this sort of existence ; and *it is that young wife who has a great influence in persuading the young doctor one way or the other*, she it is who may help him to decide against the Army as a career.

In very few cases today will a young man who has regard and affection for his family look upon changes of scene and climate ("Join the Army and See the World") as adequate compensation for the "pushing around" which he and his family may have to undergo ; this sort of "frustration" need not be met in civilian practice.

The young doctor, after he has accomplished a few "house-jobs," knows that he can settle into practice and not be subjected to moves of house and home with all the attendant expenses and disturbances—any move he will make will be one of betterment, either of house or of employment, or both. Not so in the Army—there moves may be frequent, and certainly will be two or three times in each decade ; they will be moves for better or for worse, for there may be no suitable house to go to at the new station and the husband may find himself saddled with keeping more than one place of abode, one for himself and one for his family (if he has to live in a Mess he has full Mess

subscriptions, rent for his single-officer's quarter, and other Mess expenses which would make his cost of living greater than if he could have his family with him). Moreover, many a doctor has to give shelter to aged parents or other relatives ; this he cannot do in the Army with the constant threat of a move, particularly if the move is to overseas.

A move, overseas, if the family can accompany, involves expense—which a civilian doctor does not have to face—such as suitable clothing for himself and the family according to the climate, storing of furniture and belongings at home, leaving some members of the family behind on account of education or health considerations—and the additional allowances, etc., do not wholly cover the additional expenses.

(3) *Lack of Spirit of Adventure*.—This appears to be quite an important factor and common to many young men of today ; the present-day young man will risk little or nothing, he looks for security and protection ; he moves straight from the care of his mother to the attentions of a wife ; he has been brought up in an atmosphere of “ social security ” so that his outlook is more self-centred, narrow and, to a certain extent, selfish, so that he almost abhors the thought of anything that will uproot him from security, ease and comfort. This lack of adventurous spirit is not the fault of the man, it is the result of the present-day trends of economics, education and enlightenment in this country ; as enterprise is being throttled so the spirit of adventure is also passing away. It would seem also that the spirit of adventure and the desire to see other parts of the World diminish in direct ratio to the greater ease with which other parts can be reached.

(4) *The Education of the Family*.—The education of the family raises great difficulties—with constant threat or fear of changes of station the young officer frequently has to send his children to a Boarding School, or to arrange for the children to live with relatives or friends and to attend during school—any other course may result in great disturbance of the educational programme, with disastrous results in these days of competition for entry to the Universities, to professional bodies and so forth. All this means increased education costs to the father in the Army, compared with the cost of keeping and educating a child at home in civilian life.

(5) *Discipline*.—Discipline is an essential feature of Army life, but the contemplation of Army discipline seems to have a discouraging effect on the doctor who may be considering a military career. Discipline is as essential to a civilian doctor as it is to an Army one, or to any member of society, but the scope, form, and range of discipline in the Army is irksome to a man who need not be involved in it, and who can do just as well for himself in civilian life as he can in a military one. In civilian practice the doctor is subjected to a certain minimum amount of discipline and control, and there may be some increase in the range and degree of this under the National Health Service ; but he is not required, yet, to salute the Secretary of his local hospital or the Regional Hospitals Officer or other dignitary of the Service ; he will not be subject to court-martial if he borrows money from his personal servant ; he is not ex-

pected to indulge in embarrassing situations in public places with patients or staff who fail to salute him. Annual Confidential Reports and the necessity to watch his step with his next superior officer do not, yet, condition the civilian doctor's actions and reactions to a material extent.

In civilian life the doctor does not have to "sign for" and accept responsibility for large quantities of equipment and stores which are handled by other people over whose actions he may have but little control, and whose deficiencies he may have to pay for; probably in the National Health Service now in operation, doctors may find themselves with more financial responsibilities than in the past, and they can now be subjected to "withholding of pay," but this burden is still far less than in Army life.

The civilian doctor's private life is not subjected to the whims and foibles of a Commanding Officer; he can play games or he need not; he can "answer back" and in many other ways relieve emotional or nervous tensions in a way that he cannot do in the Army, where he may have to suffer far more frustration, and apparently unfair treatment, rather than risk disciplinary action against himself with consequent prejudice to his career.

It is not intended to argue that discipline is not necessary or is overdone in the Army; the argument is that a doctor will not readily enter upon a career with all these disciplinary attachments when he can earn more, live a better domestic life and retain greater freedom in civil life.

(6) *Professional*.—Loss of professional skill is a serious and very common complaint amongst young officers serving in the Army. Professionally there is very little to attract young doctors into the Army today, especially in the absence of war casualties. Pathological cases are filtered off the Army during Intakes so that the medical officer has to deal usually with *fit* men as a routine measure, and the first-aid treatment of accidents—he sees little of hospital cases—our medical professional training is still such that we find our main interest in the diagnosis and treatment of injury and disease instead of the prevention of such—in the Army there must be great scope for the study of the prevention of disease (an aspect of medicine not yet appreciated by the young doctors). The lot of a young medical officer in the Army is an incessant stream of vaccinations and inoculations, of "Pulheems" and of "Release Medicals"; the accommodation allotted to him and "furnished" for him for his professional work is, too frequently, something that the C.O. could find no better use for, badly lit, badly heated in winter, badly cleaned, depressing.

The small proportion of Army medical officers who do have a reasonably long period in military hospitals on the whole deal with very limited types of cases. Over a period of years the medical officer loses touch with clinical medicine and surgery in a general way, try as he may to keep himself up to date; the specialist even, who may have had more opportunity to practise his art, has a much more limited field than has his counterpart in civilian life, and, if he is ambitious to gain the highest ranks and pay in his Corps, he has to separate himself from nearly all practice and become an administrator, with consequent loss of skill and efficiency in his speciality; alternatively he finds

it better to retire as soon as he is eligible to do so so that he may get an appointment in civilian life before he loses what skill he has attained.

Many doctors feel that they do not want so much money and time to be spent on their professional training and then find it being frittered away and wasted on account of lack or limitation of professional scope, without adequate compensating features. Schemes for increased pay and allowances for medical officers of the R.A.M.C. are inadequate if they do not take into consideration financial compensation or adjustment for deterioration in the doctor's professional value in competition with his civilian counterpart—one refers here to the average man with average opportunities.

(1) *Military Status and Training*.—One of the factors at work against the recruitment of medical practitioners for the Regular Army from amongst those who have performed military service in the R.A.M.C. is the bad start they have to make in present circumstances. Their services as doctors are so urgently required that they have far too short a time for training in the Depot. The medical officer has to be both a doctor and a soldier—he has a long period of training as a doctor, and comes into the Army with this background of long training, but limited experience; his experience is further limited by the type of practice he finds himself thrust into. He comes into the Army with little or no training or experience as a soldier and officer—he gets too little training in either and then finds himself thrust into military duties of which he has no knowledge or experience—he flounders and makes mistakes; he is penalized, he is imposed upon, he makes wrong decisions—right at the commencement of his service he suffers embarrassment and frustration out of which he never seems to have time completely to extricate himself—owing to insufficient training he never feels himself to be a soldier; soldiering becomes distasteful and his sole aim is to get out of it as quickly as possible. This state of affairs can be overcome only by much longer and more adequate training at the beginning of military service—later on it is too late, for the damage will have been done; admittedly, with the short period of compulsory military service there is barely time to train the doctors before they are due for release; a vicious circle exists, and something will have to be done to break it. Some may recommend that medical officers should be doctors only, and that all non-medical professional duties should be dealt with by non-medical officers of the R.A.M.C.; there is much to be said for that, but much also to be said against it, in fact more against it, both from the point of view of the Army and of the medical officer. From the Army's point of view it would be uneconomical to have a highly paid doctor working only part-time because he must not do non-medical work, another officer being paid to do the non-medical work. Moreover, the soldier is a very special type of patient, and the successful medical officer must know the soldier's way of life, and must be aware of all the difficulties of soldiers and officers. Also, the junior officer must be prepared for the time when he will become a senior one expected to command medical units, to direct Medical Services and to discuss and formulate policy. A senior officer can adequately advise his Commander only if he has a knowledge of

medical practice on the one hand and of military life and procedure on the other.

There is a tendency for young medical officers, especially those who have not been adequately introduced to Army life and procedure, to lose sight of the fact that medicine includes, broadly, sociology and the study of the ways of life. Only by being a soldier himself can a medical officer fully understand his soldier patients. It is a pity that "Specialists in Hygiene," etc. have been replaced by those designated as "Specialists in Army Health," etc.—all general duty medical officers are specialists in Army Health, or ought to be; no doubt the new designation has been brought into use in order to fall into line with civilian usage (Medical Officer of Health)—in fact, it does not; in civilian life the R.M.O.'s counterpart, the general practitioner, is employed mostly in the disposal of injury and disease; it is the Directors of Public Health, etc., who are concerned with prevention; not so in the Army; the Army's general practitioner, the R.M.O., is the key man in Army Health and its maintenance, and with the prevention of the abnormal—it would be better to call them all Army Health Officers rather than medical officers.

The foregoing sets out a few of the factors which seem to cause the average young doctor to make civilian practice his choice for a career rather than enter the Army voluntarily.

It is possible also that the scheme to engage civilian specialists for service overseas at high rates of remuneration may react unfavourably on recruitment for regular and short service commissions. In this scheme the pay and allowances for the civilian specialists (who may be unmarried and who may be paid at the lower rates) will be greater than pay and allowances for married Majors (specialists) on their highest rates of pay.

Presumably the duties of the civilians will be less, for they will not be available for many duties which fall to the lot of commissioned officers, and they will not be subject to Military Law and discipline to the same extent as the officers. A position may arise in which two specialists of similar type may serve together in one hospital

- (i) A Major R.A.M.C. senior in age and experience, maybe with better qualifications, maybe married; in addition to his specialist duties he has all the other duties and responsibilities of an officer—he will be remunerated at a much lower rate than
- (ii) A civilian, junior in age and experience, maybe less qualified and unmarried, and not subject to duties and responsibilities applicable to an officer.

The position would be inequitable and young budding specialists may be inclined to think that it would be better to hold back and engage as civilian specialists than to take the step of joining the R.A.M.C. on a Short Service Commission to be "pushed around" as they sometimes term it.

[To be continued.]

At Random

R.M.O.

THE Regimental Medical Officer was and is in some respects very much like Poohbah of the Mikado : a jack of many trades and an expert in some, though his rewards for services rendered are more those of the spirit and mental satisfaction of a job well done rather than of financial gain or enhancement of rank.

In three of the articles in this number the extent of the duties and work of the R.M.O. are stressed and in all the outstanding work of preservation of health, of keeping his flock fit and of maintenance of the morale of the unit and men under his medical charge are clearly shown.

The newly joined medical officer ; particularly the young, newly qualified medical enthusiast, who is itching to get on with real medicine or surgery and what he regards as his real professional work, is often seen and more often very audibly heard to be gravely disappointed when allotted to the job and duties of R.M.O. There seems to be so little to do, so little medicine to practise, such trivial cases to which to attend, such a sinecure of a job which any energetic young medico or for that matter anyone with the minimum of professional knowledge can quite easily do in an hour or so every day. *And the rest of the day there is nothing to do.*

It was and is interesting to watch the gradual, but often very definite change of attitude after a few months' experience and to see the medical enthusiast realise that there is much more in the job of R.M.O. than appeared at first sight ; to see him take *control* of the health of his unit and turn his enthusiasm to tracing the why and the wherefore of disease or injuries and to their prevention ; to see him become one of the Army's most valuable medical assets, a first-class R.M.O.

There are some, of course, who never fit into this role, who cannot see the value of this work, who will not do more than the minimum medical work of the M.I. Room and are constantly trying to get out of the job. Such are of little use to the unit and often of little use elsewhere.

This was the process noted most readily in the early days of the two last World Wars when many were called to Service who had had no previous experience whatsoever of Service conditions and work. Nowadays, with the advent of National Service for all and some experiences of the type of work entailed, the abrupt change from Civil practice to Service and regimental medical work will not be quite so evident.

Moreover, in the days of peace, piping or otherwise, the specialized duties

of the R.M.O. are not so obvious where the *Central M.I. Room* or *Composite Health Centre* usurps the place of many regimental M.I. Rooms and R.A.P.s. In the *Central M.I. Room* the medical officer's attention and diligence must perforce be directed to a group of units and a mixture of outside interests and duties so that he no longer feels that he is part of any one regiment or unit and conversely the regimental personnel, and particularly the seniors of the Regiment, do not have that proprietary relationship with the M.O. which the wartime R.M.O. receives and gives.

During war or periods of emergency or international incidents the M.O. is appointed to and deals with one unit and becomes in actual fact the R.M.O. As such he becomes one of the pivot figures of the unit, on him devolves much of the responsibility of the maintenance not only of the health, but also the morale and general well-being of the unit ; though, as K.R. and F.S.R. repeatedly emphasize, the ultimate responsibility is with the C.O. not with the R.M.O.

To such a degree may the R.M.O. become one of the main pivots of the unit that there are or rather were during the wars frequent cases in which the really first-class R.M.O. was not willing to leave *his* unit or the unit was extremely loath to part with *their* R.M.O. Often it was a case of both.

To such an extent was this unwillingness to leave or to lose carried that really good medical officers were often penalized personally by loss of promotion which should and would have accrued were they moved to Field Ambulance or other medical unit. As R.M.O. even the best medical officers could during the last war only remain in the rank of Captain although many proposals were put forward for promotion to field rank in special cases. The value of such R.M.O.s to *their* fortunate units was very great and might well have been enhanced by accepted special promotion on recommendation by Brigadier or Divisional Commander. But such proposals were repeatedly resisted.

Now the position has materially changed and the R.M.O. is authorized to be either Lieutenant, Captain or Major. This change may well be actually due to the scarcity of junior officers, but it does open up the prospect of promotion to the individual R.M.O. even if he remains on during some years as R.M.O. There are, of course, arguments against this stasis in one job : that the first-class R.M.O. can be of more general value in higher rank in some medical unit or higher formation, that the more junior officers should get their chance and turn in the forward units and that with too long service with one unit the R.M.O. becomes grooved, loses his perspective and lacks other medical experience. No man is indispensable and eventually a change must be made, but there is much to be said for the provision of field rank for the Senior R.M.O. of each brigade or service.

Let the newly joined medical officer realize that, *if the work is fully carried out* for the maintenance of health and morale of the unit, there is a sound, interesting and valuable job available as a Regimental Medical Officer.

Correspondence

COMMUNICATIONS IN ARMoured DIVISIONS

DEAR SIR,

I would like to congratulate Lieut.-Colonel J. C. Barnetson, *O.B.E.*, *R.A.M.C.*, on his very able treatment of the subject "The Medical Services in an Armoured Division" which appeared in the *JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, July 1950.

Having been *A.D.M.S.* Fifth Canadian Armoured Division throughout the Italian Campaign and later in Holland, I was particularly interested in the article, and found myself in almost complete agreement with Colonel Barnetson's conclusions. As he states, there may be a number of solutions to any problem, but, in this instance, the fundamental factors are such that it would seem that the tactical solution for handling the Medical Services of an Armoured Division must be along the lines postulated by the author.

I was particularly impressed by the emphasis placed by Colonel Barnetson upon the need for adequate communications for the Medical Services of the Armoured Division. This point cannot be stressed too much. Speed in collection and evacuation of casualties is of prime importance. Without adequate communications, delays will be inevitable and the casualties will be placed in the surgeon's hands too late for the saving of life and limb.

The wireless diagram presented as being that of the future (and of the past in the case of the Sixth Armoured Division) is, in fact, almost exactly the same as that which I had at my disposal in the Fifth Canadian Armoured Division. I was possibly a little better off in this regard, in that my *F.D.S.* was also equipped with wireless, and, on many occasions, acted as a relay station back to Corps when distance required such procedure. Like Colonel Barnetson, I feel that his proposal for the wireless net of the future represents the minimum requirement for the Armoured Division Medical Services. In addition, I would suggest that the same standard of wireless provision should be established for the infantry division. The "Rover" sets for the *A.D.M.S.* and field ambulance officers commanding were, in my experience, invaluable.

K. A. HUNTER,

Colonel, R.C.A.M.C.

EMPLOYMENT OF THE NEW FIELD AMBULANCE

DEAR SIR,

Without wishing to enter into the present controversy on this subject may I point out that some correction appears necessary to your footnote to Lieut.-Colonel D. Wright's letter in the last *Journal*.

"This," i.e. H.Q. and four Sections, was certainly *not* the W.E. of the Field Ambulances with the three Indian Divisions in Iraq in 1941/42 nor, judging by a copy of the 4th Indian Division Medical Administrative Instructions in my possession, did it apply to those in Eritrea and Libya during the same period.

In all these Divisions, certainly up to the end of 1942, the Field Ambulance W.E. was the original H.Q. and two Companies, one of which latter was "immobile" so far as its personnel was concerned.

In the 10th Division, following the lead of the 4th, it was the practice to attach the immobile company to a Brigade Group before any operations commenced, the Brigade thus becoming responsible for providing any "personnel" transport required for this company, while the H.Q. and mobile company were retained under Divisional control.

For this reason, if for no other, it was found advisable (if not essential) to place at least this company of the Field Ambulance under Brigade control during any mobile operations especially when two or more axes of advance or withdrawal were involved.

Finally, while entirely in agreement with Lieut.-Colonel Wright's views regarding the deployment and employment of the new Field Ambulance, might I suggest that, in order to obviate multiplication of separate units and W.E.s, it appears still possible to abolish the F.D.S. and re-constitute this as the Field Ambulance H.Q. Whether its function is described as A.D.S., M.D.S. or D.R.S. seems immaterial provided it is only utilized for *one* of these.

I am, Sir,

Yours faithfully,

G. P. KIDD,

Brigadier (R.P.).

Extracts from letters received from Major-General Sir H. J. MANOCKJEE CURSETJEE, *K.C.I.E., C.S.I., D.S.O., Indian Medical Service (Retd.)*.

SINGLE WHEELED STRETCHERS WITH SLINGS FOR USE IN JUNGLE OR MOUNTAIN COUNTRY

I was very interested to read the account of the Medical Problems in the field in Malaya. Their greatest handicap appeared to be the carriage of stretcher casualties in the jungle and the lack of sufficient number of bearers. I had tried out a one-wheeled stretcher carrier at the Mountain Warfare School at Abbottabad 1942-3 where two bearers aided with slings could transport stretcher cases over any difficult country and along footpaths or bunds.

These one-wheeled carriers were adopted by Medical Directorate Delhi and a number were sent out to Burma with Field Ambulances but they were sent by Arsenal *without* slings and of course they were unmanageable with two stretcher bearers I.A.M.C. and never used when I saw them in Burma 1944-5 during the short visit I made in those parts, thanks to your courtesy. The only unit I saw using the carrier was the West African Div. Field Ambulance

where they had some really hefty men and these men were able to handle stretcher cases on these carriers without slings. I wonder if such carriers, if supplied *WITH slings*, would help where stretcher cases have to be manhandled and labour is short handed. I feel certain it would help not only in carrying stretcher cases but any other baggage in jungle country or along bunds and paths where men have to travel in single file.

The idea of the single wheel stretcher carrier was merely to save man-power in stretcher bearers of which one will always be short after a big engagement or in difficult country like the N.W.F.P. India now Pakistan or Burma or Korea. The same carrier could be used for carting any other stores medical or otherwise and save porters where pack animals are not available or cannot be used. The slings were essential to balance the load, leaving the hands to guide the carrier without being hampered by the weight of the load which, if the slings were properly adjusted to the size of the bearer, would be borne by the wheel throughout. We tried the carrier out first along narrow bunds in Pindi with the I.A.M.C. Training Centre and then at Abbottabad at the Mountain Warfare School. One was then sent to Med. Directorate G.H.Q., Delhi, with a demonstration squad when it was finally adopted.

CRITICAL SUGGESTIONS FOR THE " JOURNAL OF THE ROYAL ARMY MEDICAL CORPS "

SIR,

It had been my object to increase the circulation of the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS in my Unit. However, after reading a specimen copy, I feel I cannot recommend it. I hope a few suggestions as to the composition of the Journal will not be considered presumptuous.

To maintain a healthy Journal the largest circulation possible should be the aim and if possible of subscribers who actually read the magazine throughout.

The Journal should have an appeal to the young Officer ; it has not. Its circulation should not depend on Charitable impulses ; it does.

May I suggest :

- (a) The leading articles be moved further back in the magazine.¹
- (b) No Medical Leaders be included as these are rarely of sufficient quality to attract the young Officer.
- (c) 1st class civilian authorities should be invited to contribute articles on a particular topic as in the Practitioner. There are a wide range of suitable subjects :

A-typical Pneumonia—Pulmonary Tuberculosis in Natives—

¹The so-called " Leading Article," *At Random*, has only appeared once at the beginning of the monthly number and in that case was due to error. This *serious defect* was remedied before receipt of these letters. It may interest our critic to know that part of the information given and discussed in the offending "At Random" was immediately seized on by a senior Training Officer and incorporated into his training lectures [ED.].

Malaria—Salmonellosis—Glandular Fever—Tonsillitis—Septic Skin Disease—Headache—Dizzy Spells—Fits—Blackouts—Fungus Disease—Encephalitis—Asthma.

- (d) The inclusion of Medical Memoranda, e.g. a short account of an individual case.
- (e) Abstracts of articles in the Medical Specialist Journals by authorities (not a competitor of the B.M.J.s for it should deal with relevant subjects to Military practice).
- (f) Facing the fact that if it is to run at a profit in the future it will have to run at a loss for a while, i.e. till circulation increases there will have to be an increased expenditure, e.g. on photographs and other illustrations to make the Journal attractive.
- (g) A free six months' supply to all Officers becoming regulars. This should eventually increase circulation enormously as the Officers might contract the habit of reading it.
- (h) With care a little in the way of Crosswords, Quizzes, Double Acrostics, Competitions, etc., with Book prizes.

(Sgd.)

*Military Hospital
Fort George,
Inverness-shire.*

D. HAMILTON,
Major, R.A.M.C.,
Cding. Mil. Hosp., Fort George.

SPECIMEN ABSTRACT

"Fish Poisoning Caused by Histamine in Indonesia" (Doc. Neerland. et Indon. de Motb. Trop.) A. G. Van Veen and H. E. Latuasan.

Tjaklang (a variety of Bonite) is eaten fresh, or dried and salted. In the latter form it may become poisonous though not perceptibly spoiled. The symptoms are described as "resembling shock."

Histamine was isolated in concentrations of 5 to 7 mg. per grain of tissue example. None or practically none isolated from non-toxic samples.

Using unidentified organisms recovered from the salted fish, the authors succeeded in the laboratory in producing Histamine from Histidine added to glucose-herring media. The enzyme was considered to be Histidine Decarboxyase, found in some species of *B. coli*.

Tjaklang has a very high Histidine contents.

No treatment is described.

"JOURNAL OF THE ROYAL ARMY MEDICAL CORPS"

Please thank Major Hamilton for his suggestions regarding the Corps Journal.

He should be informed that articles from first-class civilian authorities do appear in the Journal from time to time, but that naturally such authorities prefer that their articles should appear in Journals with a wider circulation.

However, it may be possible for the Editor to try a fresh approach to some authorities who maintain an interest in Army matters.

I am not quite clear what is meant by Medical Leaders. Any young doctor

is entitled to his opinion regarding the quality of articles appearing. It is perhaps a little ungracious to express this opinion so bluntly, particularly as the articles have usually been written by authors of higher qualifications and experience than their critic.

I have heard the same criticism of the *British Medical Journal* by supporters of the *Lancet*. The level of contributions to any journal varies from time to time and naturally with the volume of material submitted for selection.

The volume of material submitted to the Corps Journal has recently declined with the decline of regular officers with sufficient experience. The brood of specialists now recently hatched from the College may in a few years attain the weight desired by Major Hamilton, but he should realize that during the war the energetic potential authors, at the period of their lives most suitable for working up and writing on professional subjects, were otherwise engaged.

Suggestion (d) has been implemented for many years under the heading "Clinical and Other Notes."

Suggestion (e)—This suggestion does appear to be a new one. How far it can be implemented without encroaching on other abstracting agencies is hard to say. The number of articles of special military significance is limited. So is staff available for abstracting.

Perhaps Major Hamilton would care to submit a specimen abstract.

Higher authorities do not always realize the limited circulation of such abstracts as the *Tropical Diseases Bulletin*.

It is suggested that much of Major Hamilton's criticism has a temporary validity, but that if he cares to refer to the Corps Journal over a period of years he would find that the subjects he suggested have mostly been extremely well covered by military authors and their articles quoted in world-wide publications.

Has he not heard of Leishman and Bruce, Harold on chlorination, Dixon (and others) on fits, with particular reference to cysticercosis ?

Glandular fever was extremely well done some time ago.

I suggest a visit to the British Medical Association Library or the Millbank Library and reference to back numbers would make plain to him that clinical vigour and ability were not lacking in the Journal between the wars.

What the Journal now lacks are contributions from energetic doctors who have sufficient clinical experience.

Please tell Major Hamilton that his criticisms and suggestions are most welcome in spite of my comments, and that I am thinking of making them the text for an article which I hope will be sufficiently provocative to stimulate interest among readers of the Journal, always providing the Editor accepts it.

(Sgd.)

O. C. LINK,

Brigadier,

DDMS Scottish Command.

Later :

After subsequent correspondence.

In addition Major Hamilton requests that the following may also be published in continuation of his letter referred to above :

- “Something must be wrong with a Journal which has such a small circulation. I stand by my criticisms of such Leaders or Editorials as I have seen.
- “However I never criticized the articles. Those I have seen were good, though some dull. Articles from the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS are frequently referred in the reference lists in textbooks and other Journals.
- “May I suggest that the marketing is at fault ? *In the Depot I was unaware that the Journal existed.* Had a Banker's Order been thrust under our noses, many of us would have signed.”

Reviews

FLORENCE NIGHTINGALE. By Cecil Woodham Smith. Constable. Price 15s.

A great deal of research has been done in producing this book of the life of Florence Nightingale. It contains a much fuller account of all aspects of her life than other works, and will probably be the accepted standard book for the future.

It is intensely interesting and most lucidly written, giving a full account of the unabated interest she took in improving conditions for the sick and suffering.

By her rigid self-discipline and single-mindedness, Florence Nightingale set out on her mission and revolutionized the nursing world in spite of almost superhuman obstructions.

She was actively connected behind the scenes with the reorganization of the Army Medical Department, the War Office, the Army in India, the formation of a Medical College and a Welfare service for Army families, with workhouse reforms, civilian hospitals, home nursing, maternity nursing and district nursing.

This biography is a great work and throws light on conditions as they were in military hospitals at the time. It should be read by all R.A.M.C. and Q.A.R.A.N.C. officers who are interested in the past history of the Medical Services.

F. M. S.

ORTHOPÆDIC SURGERY. Fourth Edition. By Walter Mercer. Arnold. Price 50s.

The fourth edition of Orthopædic Surgery has been brought up to date.

The sections on painful feet, knees, backs and shoulders are lucid and recent work has been included. The chapter on general affections of the skeleton has been particularly well done.

It is unfortunate that the chapter on injuries to tendons does not include the treatment of divided tendons of the fingers and hand.

It is one of the standard textbooks of Orthopædic Surgery published in Great Britain and it might well be included in the library of all surgeons in the R.A.M.C.
C. M. M.

NOTES ON COMMUNICABLE DISEASES OF LABORATORY ANIMALS. By H. J. Parish, M.D., F.R.C.P.E., D.P.H. Edinburgh. E. & S. Livingstone Ltd. 1950. Pp. vii and 69. Price 3s.

Dr. Parish's pamphlet details, in telegraphic note form, the essential points of causation, symptomatology, differential diagnosis and necropsy findings of the commoner infections of laboratory animals, together with particularly good recommendations for prevention and control of disease.

It will be invaluable to the military pathologist for immediate reference when confronted by sickness or sudden death in the animal-house, and from the preventive paragraphs much could be abstracted with advantage into Standing Orders for Animal Attendants.

It is a pity that the text should have been given only the flimsiest of paper covers, very insecurely attached.
J. B. N.

Obituary

Colonel PHILIP HENRY WHISTON

ON December 22, 1950, Colonel Philip Henry Whiston. Born in Rochester January 16, 1864, he took the M.R.C.S. and L.R.C.P. London in 1887, and was commissioned Surgeon afterwards Surgeon Captain July 29, 1890. He took the D.P.H., R.C.P.S. England in 1891. He was seconded for service with the Egyptian Army from December 31, 1891, to January 14, 1899. He was promoted Major R.A.M.C. July 29, 1902, and appointed Surgeon Major Irish Guards October 15, 1902. Promoted Surgeon Lieut.-Colonel July 29, 1910, he retired January 28, 1911.

He was re-employed at the Guards' Depot August 5, 1914, to November 1, 1919, receiving the Brevet of Colonel June 3, 1919, and being brought to notice for valuable services rendered in W.O. Communique September 18, 1917.

He took part in the operations of September 19 in the Dongola Expedition of 1896, being mentioned in despatches and receiving the Egyptian Medal with Clasp. He served on the Nile in 1897 receiving the 4th Class Medjidie and a Clasp to his Egyptian Medal. On the Nile in 1898, he was present at the battle of Khartoum, being again mentioned, receiving the 4th Class Osmanieh and a Clasp to his Egyptian Medal.

Colonel CLAUDE BUIST MARTIN, C.M.G.

IN Exmouth on December 27, 1950, Colonel Claude Buist Martin, C.M.G., late R.A.M.C., Retired. Born in Heavitree, Devon, February 15, 1869, he took the M.B. Edinburgh, in 1890, and was appointed Surgeon Lieutenant January 30, 1892. Promoted Surgeon Captain January 30, 1895, Major R.A.M.C. January 30, 1904, Lieut.-Colonel August 3, 1914, and Colonel August 22, 1918, he retired August 28, 1924. He had been appointed Commandant and Director Studies R.A.M. College April 12, 1922.

He took part in the Relief of Chitral in 1895, receiving the Medal with Clasp. He served in South Africa 1899-1902 taking part in the Relief of Ladysmith, including actions at Spion Kop and Vaal Kranz, and operations on Tugela Heights (February 14 to 27, 1900) and action at Pieters Hill; operations in Natal 1900 including action at Laings Nek and operations in Transvaal. Twice mentioned in despatches, he received the Queen's Medal with five Clasps and King's Medal with two Clasps. He served in Macedonia from August 1916 to July 1920 and on the Black Sea from September 1920 to November 1921. Twice mentioned, he was created C.M.G., awarded the 3rd Class Order of St. Sava, and the British War and Victory Medals.

Lieut.-Colonel THOMAS JOSEPH MOLONEY

SUDDENLY on December 10, 1950 on board M.V. "Innisfallen" between Fishguard and Cork, Lieut.-Colonel Thomas Joseph Moloney, M.B., R.A.M.C., Retired. Born December 18, 1904, he took the M.B., National University of Ireland in 1931, and was commissioned Lieutenant February 9, 1932. Promoted Captain May 1, 1934. Major September 2, 1941, and Lieut.-Colonel June 21, 1947, he retired owing to disability December 13, 1949. After retirement he had been practising in England. He served in France from September 1939 to May 1940 and in North-West Europe from June 1944 to May 1945.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library :

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health & Hygiene, St. Barts. Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Santa, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Santa Militaire, Archives del Hospital Universitario, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette.

Journal

OF

THE

Royal Army Medical Corps

ISSUED

MONTHLY



EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

ORIGINAL COMMUNICATIONS	PAGE		PAGE
The Investigation of Load-carrying in the Army. By Captain O. C. J. LIPPOLD, M.B., B.S., R.A.M.C. and Captain P. F. D. NAYLOR, M.A., M.B., B.Chir., R.A.M.C.	147	Future Medical Officers for the Army. By Colonel R. H. ROBINSON, T.D... .	182
Instrument Requirements in Atomic Warfare. Some Questions Raised by Major A. R. T. LUNDIE, M.C., M.B., Ch.B., R.A.M.C., and Discussed by Lt.-Col. P. HALLIDAY, B.Sc., R.A.O.C.	161	"Nunc Dimittis" By SENEX... .	192
Medical Problems in Chemical Warfare. By Colonel JOHN R. WOOD	169	A Medical Officer with the Natives in Bechuanaland. By G. SPANOPOULOS, M.D.Athens. Late R.A.M.C. . . .	195
Some Aspects of the National Health Service: National Health Service Administration. By WILLIAM MACKIE, M.B., Ch.B., D.P.H., D.T.M.&H.	174	AT RANDOM	
		Soldiers' Loads.. . . .	198
		CORRESPONDENCE	202
		MATTERS OF INTEREST.. . . .	203
		REVIEW	204
		OBITUARY	204
		EXTRACTS FROM THE "LONDON GAZETTE"	206
		NOTICES.. . . .	208



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

*In the
treatment of*

Bronchial Asthma

Neodrenal

Brand

ISOPRENALINE (isopropyl - nor - adrenaline)

**THE NEW, RAPID AND POTENT
BRONCHODILATOR. OFTEN EFFECTIVE
WHERE OTHER DRUGS HAVE FAILED**

Sublingual Therapy

Because of its convenience, sublingual administration is the method of choice. If taken promptly, at the onset of wheezing, an attack can usually be completely aborted.

Inhalation Therapy

In patients experiencing frequent paroxysms of severe asthma, "oral" inhalation is indicated. Seldom fails to give immediate relief from respiratory distress.

Literature and Samples on request
SAVORY & MOORE LTD.
WELBECK STREET, LONDON, W.1
Telephone :
WELbeck 5555 (20 lines)
Telegrams :
Instruments, Weado, London

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

THE INVESTIGATION OF LOAD-CARRYING IN THE ARMY

BY

Captain O. C. J. LIPPOLD, M.B., B.S.

Royal Army Medical Corps

Graded Physiologist

AND

Captain P. F. D. NAYLOR, M.A., M.B., B.Chir.

Royal Army Medical Corps

of the Army Operational Research Group

FROM experience gained in the past war, it has become evident that a reform in methods of load-carrying in the Army is necessary. In Military operations three main problems present themselves.

Firstly, heavy weights up to 250 lb. have to be transported relatively short distances. This is exemplified by the portorage of ammunition, stores, etc., and the methods adopted are not subject to limitations imposed by military considerations. Secondly, medium weights, represented by a soldier's personal equipment, have to be carried on long marches. Thirdly, small weights, comprising the ammunition and weapons of fighting order, have to be carried into battle by the use of an apparatus which interferes as little as possible with the fighting duties of the soldier.

It has been obvious time and again in past campaigns that decisive advantage is given to forces having rapid mobility. While this mobility is, in part, dependent on mechanization, it also depends a great deal on the ability of the infantryman to undertake long forced marches carrying a maximum of arms and equipment. He is enabled to perform such marches only when his load carrying apparatus is of the utmost efficiency. It is with this last problem, namely that of producing an efficient fighting order, that the Army has been mainly concerned.

The problem of devising an effective battle order is complicated at the outset by the lack of any agreement on the basic requirements of such an apparatus. How much and what type of ammunition should be carried? What personal equipment is essential to maintain the soldier in battle? Obviously, the answers to these and similar questions depend largely on the type of military operation and the theatre in which it is being carried out. Thus any specific equipment produced either must be extremely versatile in use or must be capable of modification to meet the local demands upon it.

From these and other considerations, it would appear that the most profitable method of attacking the problem is to define certain fundamental principles on which might be based a successful design of battle order. Two main methods of objective investigation of load-carrying problems can be employed. These are :

- (1) Laboratory experiments.
- (2) Field trials.

It is with the first of these two methods that this paper is concerned.

In the design of equipment for load-carrying it is necessary to consider the normal functioning of the individual with specific reference to the tasks which he will have to perform when fighting, in order that these may be impaired to as small an extent as possible.

Load to be Carried.—It is not generally realized that *the physical performance of a man is at its peak when he is unladen*. Obviously this is impracticable in warfare when weapons and equipment have to be carried by each man. Any load-carrying impairs to some extent the physical performance of the soldier. Cathcart [2] showed that when the load which a man carries exceeds 35 per cent of his body-weight, expenditure of energy becomes disproportionately large. Whether this disproportionate rise in expenditure of energy also means a disproportionate rise in rate of fatigue is not clear. It is unimportant, because the basic fact remains, that the greater the load the greater the fatigue, and therefore the load should be made as light as possible. This is the most important single point concerning load-carrying into battle.

Disposition of the Load.—In order to assess the merits of the various fundamental methods of carrying loads it is necessary to devise objective techniques which will enable a comparison to be made. Such techniques are all laboratory investigations which, from the point of view of indicating the design of efficient load-carrying apparatus, are at least as important as the subjective methods employed in field trials.

All too little of this work has been done in the past, and most of the literature deals with metabolism experiments, the details of which were first described by Waller [6]. Significant differences in the expenditure of energy for different methods of load carrying were observed by Bedale [1], who investigated various types of carrier used in industry. 40 lb. was found to be the maximum economic load for most types of carrying.

The results obtained in these and other experiments indicate that there

are four essentials in the design of any load-carrying apparatus, to ensure a minimum expenditure of energy in use. These are :

- (a) Elimination of local strain ;
- (b) The maintenance of normal posture ;
- (c) The maintenance of a normal and free gait ;
- (d) Chest freedom.

Disproportionate expenditure of energy does not necessarily mean disproportionate rate of fatigue, but in the absence of evidence on this point it is reasonable to keep expenditure of energy at a minimum. Furthermore the four factors quoted above are also those which promote bodily comfort and ease of performance of military tasks. For these reasons it is desirable to see how load-carrying equipment can be designed to conform with these requirements.

Elimination of Local Strain.—Any method of load-carrying which entails continuous muscular contraction to counteract the effect of gravity acting upon the load must produce strain and fatigue in the groups of muscles so employed, particularly if these muscles are weak ones. The carriage of loads on the shoulders shows these disadvantages clearly. The result is early fatigue and discomfort in the muscles employed to keep the shoulder girdle elevated. Occasionally this method of load carrying has caused a drop of the clavicles with compression of the brachial plexus and/or the subclavian artery, resulting in numbness and paralysis of the arms (Stammers [4]). This difficulty is avoided when weight is applied directly to a portion of the skeleton which can transmit the weight to the ground without the intervention of “strut muscles.” There are two ways of doing this :

- (a) Carriage on top of the head.

Although this method theoretically enables loads to be carried without the use of muscles, Bedale observed that the unstable position of such a load leads to a state of increased muscular tension—particularly in the neck and shoulder region. In any case the method is obviously quite unsuitable for military operations.

- (b) Carriage of weight on the hips.

It was decided to investigate this method of load-carrying in order to determine whether it did, in fact, reduce the amount of continuous muscular contraction necessary.

Note on Experimental Investigation of Local Strain.—When a muscle contracts, the individual fibres of which it is composed develop minute action potentials. Electrodes placed over the belly of any muscle pick up volleys of these electrical impulses throughout the duration of its contraction. During relaxation little or no electrical activity takes place. Thus it is possible by using suitable amplifying and recording apparatus to determine the presence of activity in any muscle or group of muscles.

A rough comparison can be made in this manner of the activity of a group of muscles when loads are carried in different ways. It will be seen from the

details given in Appendix A that, in general, muscular contraction is less in the muscles of the back and shoulder girdle when the load is supported by the hips, than is the case when it is supported on the shoulders. This agrees with the conclusion arrived at from theoretical considerations.

The Maintenance of Normal Posture.—The normal posture of a person carrying a load may be disturbed for several reasons :

- (a) The load is too heavy ;
- (b) The load is not suitably attached to the body. The arms may have to be employed to steady or hold the load ; or the back may have to be bent to carry it ;
- (c) The load is too bulky (e.g. in order to carry a bulky suitcase the arm carrying the case must be held out at an angle from the body in order to hold the case away from the legs) ;
- (d) The load is not properly balanced.

In a static system in equilibrium, the centre of gravity lies over the base. The feet of a standing man form the base of such a system and the centre of gravity normally lies over a certain part of the feet. If a load is placed upon his back the centre of gravity is displaced backwards and his equilibrium disturbed. In order to restore the equilibrium he must bend forward so that the centre of gravity is again brought over the same part of the feet. To maintain this new posture, constant activity in certain muscles is necessary and a greater output of energy is needed than in maintaining the posture normally taken up by an unladen man.

Floyd [3], using an electromyograph on unladen subjects, has shown that, in maintenance of posture, there is least continuous activity in the muscles of the back and abdomen when the subject is in the upright stance. Slouching and bending forward increase the muscular activity considerably. Floyd did not experiment with laden subjects. From his work it might be predicted that the muscular effort necessary to maintain posture in the laden subject would be a minimum when the load was so arranged about his body that the centre of gravity remained in *the same place* as in the unladen, upright body. Any displacement of the centre of gravity would increase the amount of activity necessary to maintain the standing posture.

Experiments were designed to test this prediction : they are described in detail in Appendix B. They showed that in standing and marching men with loads variously disposed, muscular activity concerned with maintenance of posture was at a minimum when the load was so balanced that there is no disturbance of the body's normal, static equilibrium.

Maintenance of a Normal and Free Gait.—Some of the factors which are concerned in the maintenance of a normal and free gait in load-carrying are :

- (a) The weight of the load ; no subject can walk normally if the load is excessively heavy ;
- (b) The posture of the carrier ; an abnormal posture causes an abnormal gait ;
- (c) The height of the centre of gravity of the load above the ground.

When a man carrying a weight is walking, alterations will occur in the angle which the long axis of the body makes with the vertical. The higher the load is above the ground the greater will be the displacement of the vertical projection of the combined centre of gravity, when this angle is altered. The actions which a load carrier takes in such a case of instability are :

- (a) Preventive—by taking small steps which cause less deviation of the body from the vertical ;
- (b) Corrective. Once unstable equilibrium has occurred these measures are twofold :
 - (i) Quickly moving the feet to lie under the centre of gravity of the load which in effect is a small staggering movement ;
 - (ii) Bending the body in a direction opposite to the deviation from the vertical (which entails the use of additional muscles).

The closer the centres of gravity of the component parts of the load are to the centre of gravity of the body, the easier are these corrective actions, for the further away they are the greater will be the angular momentum of the load, and a large angular momentum impedes necessary corrective movements.

The lower the centre of gravity of the load carried, the greater the angle the body can make with the vertical without loss of balance occurring. Steps of a normal length can then be taken and any unevenness in the ground, causing deviation of the body from the vertical, will not cause such a large movement of the centre of gravity of the load as to upset the gait of the load carrier. Thus, by making the load light, having it properly balanced, carried as close to the body as possible and as low as possible (but not interfering with the movement of the legs), the normal gait may be maintained.

Chest Freedom.—This may be interfered with in two ways :

- (a) Muscular tension is increased in the chest and back muscles as a result of an unstable load. A good example of this is the carriage of loads on the head in an untrained man. The instability of such a load makes the subject hold himself very rigidly and this is a hindrance to normal respiration.
- (b) Direct pressure on the chest by weights or straps also hinders normal respiration.

Thermal Stress.—The body temperature is maintained by the balance of heat production and heat loss. Exercise greatly increases heat production because only part of the energy liberated by the chemical changes in muscle is converted into mechanical work, the remainder being evolved as heat. This heat must be lost if the body temperature is to remain within normal limits.

Heat is lost from the body by convection, radiation and in vaporization. Under conditions of strenuous exercise a large proportion of the total heat is dissipated through vaporization. If during exercise the balance is to be maintained, and an excessive rise in body temperature avoided, heat production must be at a minimum and heat loss by vaporization must be as free as possible.

It is desirable to avoid an excessive rise in body temperature but once it has occurred and sweating has resulted, the sweat must be allowed to vaporize freely, not only to reduce body temperature again to normal but also because sweat accumulation *per se* is undesirable.

Over short periods clothing becomes saturated, in which condition it is a better conductor of heat. This is advantageous during the actual exercise. When exercise ceases, however, the damp clothing causes rapid heat loss with consequent chilling and attendant ill-effects, unless a change of clothing is available. Over longer periods sodden skin predisposes to skin disease and also is more susceptible to pressure and chafing. Since areas of sweat accumulation are also areas of weight bearing, blistering and ulceration of the skin may result. It is therefore necessary to consider the factors which affect the accumulation of sweat on the skin and how they may be avoided.

The accumulation of sweat on the skin, after its production, occurs when the humidity of the air layer immediate to the skin is high. The humidity of this layer depends partly on general atmospheric humidity and partly upon the rate of exchange of this layer with atmospheric air. The rate of exchange of this contact layer is controlled by several factors :

- (a) In hot weather or during exercise the skin must be uncovered over as large an area as possible or, if covered, air must be allowed to circulate freely under the clothing and out again. There must be no unnecessary areas of material, especially if tight fitting, covering the skin :
- (b) The air spaces under the clothing must not be divided by straps into a series of relatively airtight compartments ;
- (c) Wherever possible the load should be supported away from the skin ;
- (d) Weight bearing areas should be small. (This clashes with the requirement of having these areas as large as possible to diminish pressure per unit area. A compromise must therefore be effected between the two (*see below*).)

In practice it is difficult to distinguish between small differences which various clothing assemblies have upon the total volume of sweat secreted. It is therefore correspondingly more difficult to distinguish between the differences in total volume of sweat produced when wearing different load-carrying equipments.

In considering various types of equipment, differences in rate and distribution of sweat *accumulation* are more important than total sweat production. They also vary more and are therefore easier to measure.

Experiments on the comparison of equipment must be performed in a climatic chamber in order to standardize the temperature and humidity of the atmosphere. These experiments can be carried out using water-sensitive agents on the skin or on garments next to the skin. Local accumulation of sweat is indicated by an area of colour change, the extent of which can be

permanently recorded by means of a suitable photographic technique. Comparative results are given in detail in Appendix C.

Skin Pressure and Skin Friction.—When loads are carried for a long time the ill-effects of pressure and chafing on the skin become apparent. These effects are caused by :

- (a) Steady high pressure on certain areas of skin ;
- (b) Variations of pressure on certain areas caused by parts of the equipment bouncing against the body ;
- (c) Movement of the clothing and equipment relative to the skin, causing frictional effects.

When any of these factors becomes excessive, redness, blistering, bruising and painful ulceration of the skin result. Experimental work on the relative importance of these factors in producing ill-effects needs to be carried out.

Steady Pressure.—Pressure per unit area of body surface is directly proportional to the total weight carried and inversely proportional to the total area over which this weight is applied. To reduce this pressure the area of supporting skin must be as large as possible. Weight-bearing straps if present must be broad. In order to maintain skin pressure over the weight-bearing areas at a uniformly low level, the fit of equipment to the body is important.

Bouncing of the Load.—When a man is walking at moderate pace, “bouncing” of the load is not a serious problem ; when he is running, however, the frequency and amplitude of the up and down movements of the body are increased. If the load is rigidly fixed to the body, a great deal of energy is required to overcome the inertia of the load at each step. If loosely fixed, the load moves relative to the body at each step and “bouncing” occurs.

Different parts of the body move with different frequencies and amplitudes during normal locomotion. Steindler [5] has shown experimentally that the shoulders move slightly less in the vertical direction than do the hips. Moreover there are relatively high-frequency components in the motion of the hips not present in the shoulders, which show an altogether smoother movement. Important from the load-carrying point of view is the fact that the amplitude of the vertical motion of the shoulders can be voluntarily greatly reduced (by flexing the trunk on the hips). Vertical motion of the hips cannot be so reduced, except by running or walking with the knees bent throughout each step taken ; a condition imposing severe strain. Therefore if loads have to be carried when running, bounce is more severe when hip support is used, than when straps over the shoulders are used. This is the greatest single disadvantage of the pelvic carriage method.

When bone immediately underlies the skin, skin compression is higher than when soft tissues intervene and exert a cushioning effect. Therefore weight-bearing areas should have an adequate thickness of tissue covering the bones.

Frictional Effects.—Movements between the skin and clothing and equipment must be minimized. In practice this means that the friction between

skin and clothing must be so great that movement does not occur. Thus static friction should be as great as possible and kinetic friction at a minimum.

APPENDIX A

ELECTROMYOGRAPHIC INVESTIGATION OF LOAD CARRIAGE ON THE HIPS AND ON THE SHOULDERS

When a muscle contracts, small potentials occur in the individual fibres of which it is composed. These can be recorded using suitable apparatus, to give a rough idea of the state of contraction of the muscle. This method suffers from severe limitations in its application for several reasons.

Firstly, only those muscles directly underlying the pick-up electrodes can be investigated. Although some indication of the activity of the surface musculature can be obtained, it by no means follows that the state of the deep muscles can be deduced from these results.

Secondly, the electromyographic method differentiates only between contraction and relaxation of muscle. It does not give any reliable measure of the degree of contraction of a muscle. Not only is there stray pick-up from neighbouring muscle groups, but, when muscles contract, their relative positions beneath the skin change. It follows from this that any system of multi-channel recording of muscle action potentials, using numbers of skin electrodes in order to differentiate finely between the degree of contraction of various muscles, is bound to produce extremely misleading results.

There is no doubt, however, that in spite of these difficulties the electromyographic method has a limited application to load carrying problems, in that it is able to give a rough confirmation of the expected behaviour of certain large muscle groups. Experimental work has been carried out in an attempt to differentiate between the muscular effort involved in hip and shoulder carriage.

The conclusion has been reached that the electromyographic method has no place in routine laboratory tests on specific carrying equipments, especially when differences between them is small, although it is of use in the comparison of fundamentally different ways of load carriage.

Methods.—Action potentials are led from the muscles by skin surface electrodes, consisting of brass cups $\frac{1}{4}$ inch dia. and $\frac{1}{4}$ inch deep, connected via $\frac{1}{8}$ inch ext. dia. pressure tubing to a Bunsen vacuum pump. The cups are electrically connected via earthed balanced twin, low impedance cable to a push-pull amplifier.

The input, balanced with respect to earth, is fed to a push-pull buffer stage followed by a Tönnies compressor, which gives good discrimination between signal and interference. Two further stages in cascade drive a cathode ray oscilloscope, the vertical deflection of which is photographed upon a continuously moving strip of bromide paper. The overall gain is such that when using electrodes over the extensor indicis longus, elevation of the forefinger results in a vertical deflection of the spot by about 4 cm. The apparatus is so arranged that the subject is able to walk and run a distance of 20 yards in the open, while records are being taken.

The electrodes are attached to the subject as follows (fig. 1).

- (a) Trapezius.
- (b) Cervical part of sacrospinalis.
- (c) Thoracic sacrospinalis.
- (d) Lumbar sacrospinalis.
- (e) Over abdominal muscles (rectus, int. and ext. oblique).

In all cases the subject stands at ease, attention, marches and halts, firstly wearing equipment carrying 45 lb. over the shoulders, secondly carrying 45 lb.

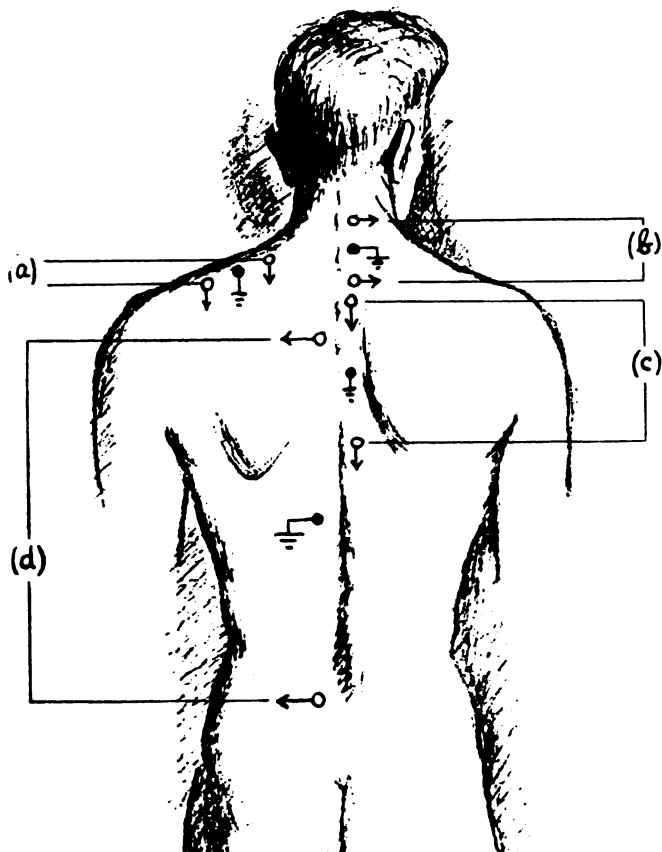
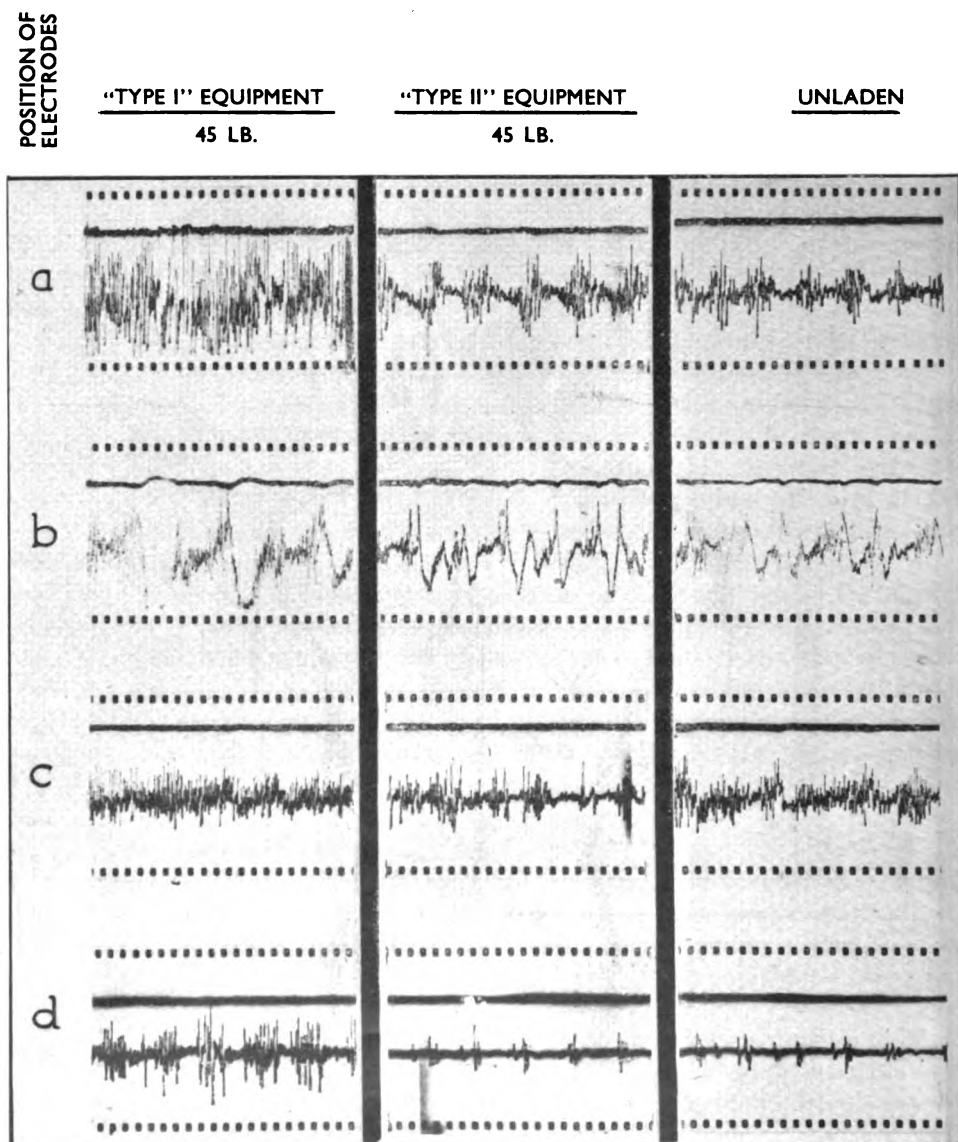


FIG. 1.—Arrangement of Electrodes.

on the pelvis and thirdly unladen. Each experiment is carried out with electrodes untouched from beginning to end. Four subjects took part in 52 experiments.

Results.—When the electrodes are placed on the back as in cases (a), (b), (c) and (d) above, very considerable difference in activity of the underlying

muscles is observed (fig. 2). Weight carried on the shoulder girdle causes a continuous contraction of trapezius and the sacrospinalis. This is the case in all experiments.



TIME MARKING : 0·1 SEC.

FIG. 2.—Electromyograph records taken from the back musculature using surface electrodes. Comparison is between "type I" equipment utilizing carriage on the shoulders and "type II" equipment using hip carriage. The third column shows the same subject marching with no load.

In most, but not all, experiments there is lack of activity in these muscle groups when weight is carried on the hips. Records taken from the abdominal musculature give equivocal results. A very few records taken from other muscles (limbs and back) fail to reveal any significant difference in activity.

Discussion.—The fact that there is considerable activity of the trapezius and of underlying muscles both when standing still and walking with shoulder carriage indicates that these muscles are being used to keep the shoulder girdle elevated. When the weight is transmitted directly to the pelvis it is seen that these muscles are no longer in continuous use.

The increased activity of the sacrospinalis which occurs with shoulder carriage when walking, indicates that the high position of the centre of gravity in this case leads to a condition of increased instability compared with a method of load carriage in which the centre of gravity is lower down. This increased activity of the sacrospinalis represents the force necessary to restore the body to the vertical after its displacement during a step.

While it cannot be concluded from these results that hip carriage is invariably preferable to shoulder carriage, other factors being equal, it is reasonable to suppose that a method of load carrying involving less muscular effort to support the load is the more efficient.

APPENDIX B

EXPERIMENTAL INVESTIGATION OF LOAD "BALANCE"

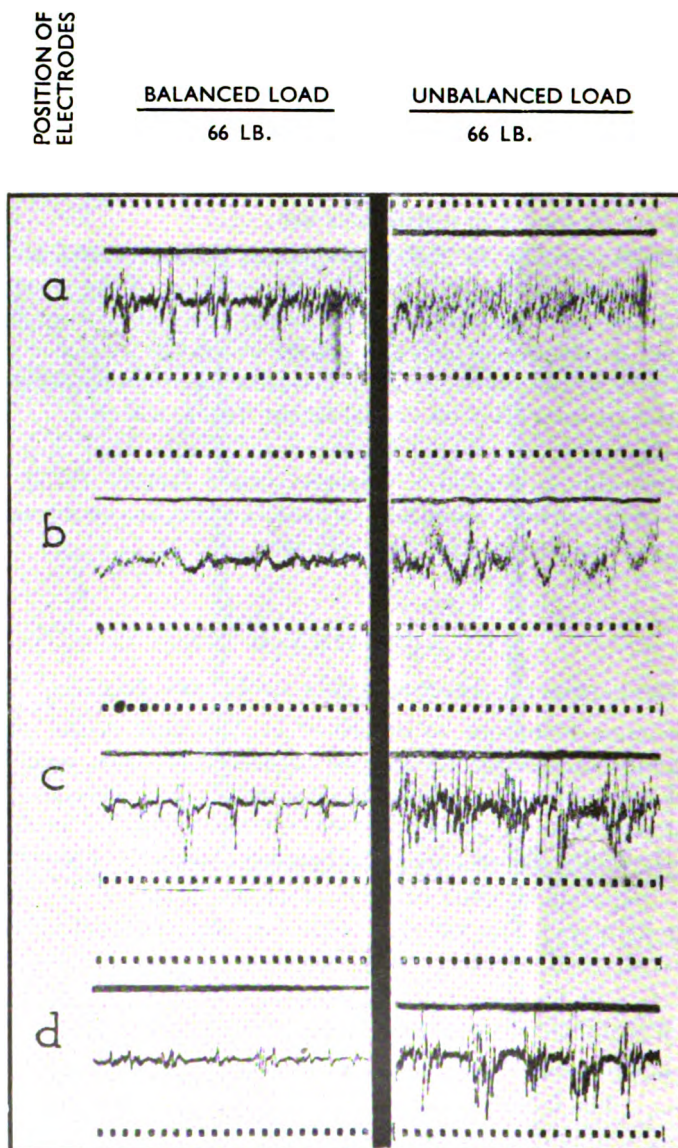
Using the same technique as described in Appendix A the effects on the activity of major muscle groups can be investigated when loads are carried so that they are "balanced" or "unbalanced." A "balanced" load is so disposed that the centre of gravity of the component parts of the load coincides with that of the body. Loads may be unbalanced laterally or anteroposteriorly.

Methods.—Separate weights of 33 lb. each are hung on the shoulders and hips in different ways. The activity of the sacrospinalis and other superficial muscles is investigated as before, using electrode positions (a), (b), (c) and (d).

Results.—It will be seen from the tracings reproduced in fig. 3, that the activity in all cases tends to be much increased when the load is carried in an unbalanced manner.

Discussion.—The fact that there is considerable activity of the back muscles when carrying a weight unbalanced, indicates that dorsal displacement of the combined centre of gravity is compensated by a continuous contraction of these muscles in order to fix the spine and hip-joints in a position of semi-flexion.

When the weight is evenly distributed, as in the second series of experiments, little alteration in the vertical projection of the combined centre of gravity takes place, posture is normal, and there is little or no activity in the back muscles.



THE MARKING : 0·1 SEC.

FIG. 3.—Electromyograph records of a marching subject loaded in two different ways. The first column shows activity of the back muscles when the load of 66 lb. is arranged so that its centre of gravity coincides with that of the body. The second column shows the greater muscular contraction necessary to support the same load when it is carried all on the back, with its centre of gravity displaced dorsally.

APPENDIX C

EXPERIMENTS ON LOCAL SWEATING

The total volume of sweat secreted by the body in a given time depends mainly on its expenditure of energy during the period and the "effective

COMPARISON OF LOCAL SWEAT ACCUMULATION Superimposed Line Drawings of Photographed Vests. (5 Experiments)

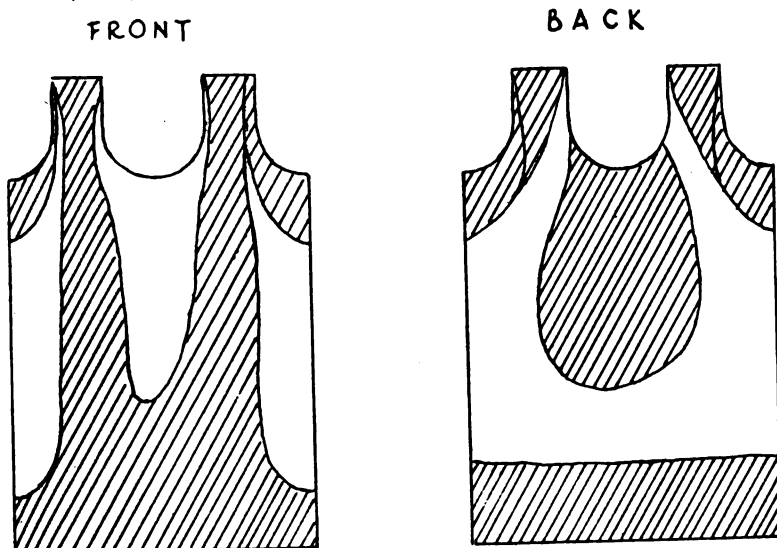


FIG. 4 (i).—Type I equipment worn over the vest.

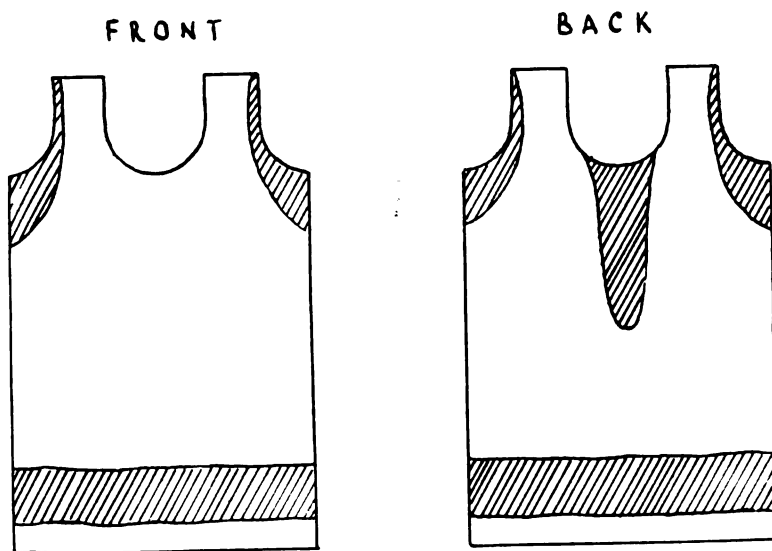


FIG. 4 (ii).—Type II equipment worn over the vest.

temperature" of the environment. The effect on expenditure of energy in carrying a particular load in different ways is relatively small, so that any resulting change in total sweat rate will be negligible over short periods.

Local accumulation of sweat, due to failure of its evaporation, is a major cause of discomfort during exercise. The design of load-carrying apparatus profoundly influences the extent of sweat accumulation when it is worn.

To demonstrate the degree of impairment of sweat evaporation due to any type of equipment, the areas of the body on which the accumulation of sweat occurs, can be demarcated.

Methods.—White "Aertex" vests (largest size to allow for shrinkage) are dyed evenly in a saturated solution of cobalt chloride. After drying in a forced ventilation heating cabinet, a vest is donned by the experimental subject. The equipment investigated is worn over the vest.

After a standard period of exercise in the hot chamber, the vest is photographed, front and back. Areas of sweat accumulation appear bright red. Areas where evaporation proceeds normally remain blue.

Photography is rendered difficult by the colours being very unsaturated (owing to the use of the white vest). Use of a minus blue filter of appropriate type together with panchromatic film gives the best results. Adequate contrast can, however, be obtained by using orthochromatic film and a blue filter.

Results.—Fig. 4 shows the comparison between two types of equipment type I possessing more straps than type II. It can be seen that the areas of weight bearing show sweat accumulation in both types, but whereas under the pack and the numerous chest straps in type I are massive accumulations, type II gives rise to very few additional areas of sweat accumulation.

SUMMARY

The Physiological principles concerned with load-carrying into battle are explained. Experimental procedures are outlined which may be used in the testing of equipment produced in the future and which were used to enable the deductions to be made.

It is concluded that the carriage of loads on the hips is preferable to other methods and that less muscular effort is required to carry loads when these are close to the body and disposed in a balanced fashion.

REFERENCES

- [1] BEDALE, E. M. (1924) I.F.R.B. Report No. 29 H.M.S.O.
- [2] CATHCART, E. P., CAMPBELL, W. and RICHARDSON, D. T. (1923) *J.R. Army Med. Corps*, **40**, 435, and **41**, 12-24; 87-98; 161-178.
- [3] FLOYD, W. F., and SILVER, P. H. S. (1951) *Lancet*, **260**, 133 and (1950) *J. Anat. Lond.*, **84**, 132.
- [4] STAMMERS, F. A. R. (1950) *Lancet*, **258**, 605.
- [5] STEINDLER (1935) *Mechanics of Normal and Pathological Locomotion*. Springfield, Illinois. C. C. Thomas.
- [6] WALLER, A. D. (1920) *Proc. Roy. Soc. B.*, **91**, 166.

INSTRUMENT REQUIREMENTS IN ATOMIC WARFARE

SOME QUESTIONS RAISED BY

Major A. R. T. LUNDIE, M.C., M.B., Ch.B.

Royal Army Medical Corps

AND DISCUSSED BY

Lt.-Col. P. HALLIDAY, B.Sc.

Royal Army Ordnance Corps

The opinions expressed herein are those of the authors and do not necessarily represent the official views of the departments with which they are associated.

THE NEED FOR INSTRUMENTS

THOSE who have read and remembered "What you should know about the atomic bomb" [1] will be prepared to recognize the need for instruments in atomic or radiological warfare. Examples have been demonstrated at scientific meetings [2] and at courses and lectures. The popular press has done its best to make the population "Geiger conscious."

Naturally many questions are bound to arise in connexion with this subject. I have selected some which, as Major Halliday's study shows, cover most of the field.

It is well known that after the bombing of Hiroshima and Nagasaki no serious effects were caused by induced radioactivity or fall out [3]. Some blood changes were observed in an area where fission fragments fell and Japanese physicists were able to measure induced radioactivity in certain areas. The important point is that there was no danger to rescue personnel who went into the devastated area and worked there.

If circumstances should arise where there appears to be a danger of radioactive contamination, instruments capable of detecting this will obviously be of value. Because of this the following questions seem important :

- (1) What instruments can be used to detect those areas where advanced medical units should not be placed ?
- (2) What instruments will be of value in determining how long personnel may be employed in rescue and other operations in a contaminated area, and for indicating those areas where special precautions must be taken ?
- (3) How can contamination be detected on personnel returning from work in a contaminated area or on casualties evacuated from such an area ?

- (4) Where water is to be examined for radioactive contamination are there reliable means of telling whether it is fit for human consumption? The presence of alpha or beta emitting substances will be of great importance here.
- (5) The next source of internal radiation damage is contaminated food. How is it to be monitored?
- (6) As a result of a breakdown in protective measures or following wounds radioactive material may be taken into the body in significant quantities. How can instruments help in the detection and treatment of such persons?
- (7) The last question is concerned with the situation after atomic attack.

The medical services will have all their resources severely strained by large numbers of casualties suffering from burns and trauma [4]. Many of them will in addition be affected by radiation. If the best use is to be made of available facilities we must be able to tell as soon as possible how much each patient has been affected by radiation. Waiting until the maximum lymphocyte depletion has developed and then performing blood counts would lose time, and take up personnel who might more profitably be employed on transfusion or other duties [4].

Provided sufficient information was available about the type of weapon used, its height above the ground at the time of the explosion, and the position of the hypocentre, it might be possible to make some sort of estimate of the amount of radiation received by a patient, whose position at the time of the explosion was known. The amount and type of shielding available would also need to be taken into consideration. Even where all the information required was available much time would be taken up in its collection and the details about the patient might well be inaccurate.

Vomiting on the day of bombing may give some indication of the amount of radiation damage sustained [5]. There will always be the possibility that this is due to psychological or other causes. When it is a result of radiation the dose may have been moderately severe to massive.

Hæmatology, the physical factors and the clinical picture are all unsatisfactory. What can instruments do to help? A suitable instrument will not only help in the sorting of injured personnel, but will make the diagnosis of significant exposure to radiation damage, and the reassurance of unirradiated personnel, a non-medical matter, thus enabling the best use to be made of available resources.

CONSIDERATIONS AFFECTING THE TYPES OF INSTRUMENTS REQUIRED TO DEAL WITH THE CONSEQUENCES OF ATOMIC WARFARE

The use of nuclear weapons in war is still so new that it would be unreasonable—even dangerous—to attempt to cater for all conceivable forms of attack by a fixed range of instruments made in large quantities in advance. In a future war there would have to be that day-to-day development of defence (and, we hope, attack, although we are not concerned with that here) which

was brought about by the close co-operation of scientists, engineers and the armed forces in the last war in combating the sea mine and the flying bomb. There would, however, be a basic set of instruments produced on a large scale to satisfy certain requirements which may arise whatever the exact nature, form and method of use of the nuclear weapon.

The Likelihood of Contamination from the Atom Bomb.—With this in mind, one should examine the general question of contamination by radioactive substances. This is likely to occur as the result of a low-burst atomic bomb over land or water. In the former case, the fire ball can touch the ground if the height of burst is less than 450 feet, and if less than 250 feet a crater will probably be formed. This means that perhaps hundreds of tons of earth, buildings, etc., will be vaporized and will pass up with the ball of fire. Additional dust and debris will be swept up by the wind which blows inwards to ground zero as the result of the convective movement. Much of this material will eventually fall to earth again in a contaminated state. The location of this contamination, its concentration and the time taken to settle out will depend on the design of the bomb, the nature of the earth's surface and the atmospheric conditions (prevailing winds, rain, etc.). In Japan the two bombs were detonated at a height of about 2,000 feet so that the fall-out was inconsiderable. This was done intentionally so that the bombs would cause the maximum destruction to these targets and the situation might be different in the case of an enemy attack on this country.

In addition to fall-out, contamination may result from the deposition of fission products on the ground and from radioactivity induced in substances near the ground zero by the neutrons from the burst. At the New Mexico trial (bomb at 100 feet), the dose rate at one hour after detonation was 8,000 roentgens per hour at ground zero (mean lethal dose is 450 roentgens) and 150 roentgens per hour at 300 yards. Cattle at 10–15 miles away were affected by the fall-out.

For a burst over water the contamination will, generally speaking, be more severe than for a comparable burst over land. A special difficulty in the case of sea water is the induced radioactivity in the sodium of the salt.

These facts must be qualified by the knowledge that serious contamination is associated only with a low burst and that the neutron-induced radioactivity and the contamination from fission products decays rapidly. For example, the total gamma activity from the fission products falls to less than one hundred and thirtieth of the value obtaining at one minute after the burst, by the time an hour has elapsed, and at the end of twenty-four hours there is less than 1/6000 of the one-minute value remaining. It is estimated that no serious effects would have resulted from walking straight across the New Mexico contaminated area if six hours or more had been allowed to lapse after the burst. It would have been possible to drive across in a car much earlier, since in this case the time of exposure would have been shorter to compensate for the higher dose-rate. It must also be remembered that such highly contaminated areas would be completely devastated by blast and fire and it would rarely

be worth while, or even physically possible, to enter them. Furthermore, the dose from contamination deposited on the ground would not add appreciably to the heavy flash dose sustained by those unprotected people who were near the burst.

The Portable Dose Rate Meter.—To sum up for the atomic bomb as we know it, the contamination after the burst might range from something quite negligible up to a level which would preclude work in the area for a few days, depending on the conditions mentioned above. The danger has probably been over-estimated in the past.

It is clearly necessary to rely on an instrument to show if there is appreciable contamination and, if so, to what degree. This instrument, called a Portable Dose-Rate Meter, should be used to make a reconnaissance of the devastated area near ground zero as soon as possible after the burst and at intervals thereafter. It shows continuously the rate at which radiation is being received by the carrier, in units of roentgens per hour. As the streets are likely to be blocked with blazing debris it might be necessary to make the survey by aircraft; perhaps a helicopter could be used.

When this information of dose-rate at a given time and distance from the centre of damage was known at the Control Centre, it would be possible to decide how long rescue parties could be allowed to work in these areas, bearing in mind the natural decay of the radioactivity. This instrument, therefore, caters for requirement No. 2.

The Individual Dosimeter.—It is likely, once rescue operations had begun, that the parties might have to make unforeseen detours or special journeys as the situation developed, so that however careful might be the forecasting of total dose to be received, based on the Dose-Rate Meter readings, there would always be some uncertainty. This will be met by the use of the Individual Dosimeter which might be carried by one or more members of a rescue party. It shows at a glance the total dose of radiation sustained by the wearer from the beginning of the operation and is very robust. The use of this instrument is a contribution to the fulfilment of requirement No. 2.

Contamination from the Fall-Out.—The information provided by the Dose-Rate Meter would have to be combined with meteorological information by the trained technical staff at the Headquarters of the controlling authority (Civil Defence or Service) in order to forecast the probable course and intensity of the fall-out. (This brings up the requirement for good and reliable radio communication between Headquarters and rescue parties.) As the result of this calculation, instructions would be sent immediately to all existing Casualty Clearing Stations and Field Dressing Stations in the affected area. No doubt, owing to the general difficulty of organizing a move and the shortage of transport, it would sometimes be decided to remain until the Individual Dosimeters began to record direct evidence. It would be an obvious precaution to cover food, close windows, etc. In such areas, however, it would be foolish to site new Casualty Clearing Stations, Dressing Stations, etc., and, in general, these would not be *planned* downwind and would not be *sited* until

the instructions referred to above were issued from Headquarters. This is considered to be the practical way of answering Question 1.

The Contamination Meter.—Question 3 asks what arrangements might be made for the detection of contamination of personnel and for its removal. Except in the case of a burst in water or ground, it is not considered that sufficient contamination would fall on people to cause them serious injury from external irradiation, but it is obviously desirable for extensive contamination to be detected and removed by organized washing and laundering, especially as normal facilities in the bombed area might well be put out of action by failure of electricity, gas and water supplies. The most urgent requirement would be to separate out those with no contamination so that they could proceed as quickly as possible to carry out essential services or merely get out of the way. The Contamination Meter has been designed with this requirement in view and meets Question 3. It consists of a Geiger counter which, when held near a person, shows by a meter reading whether he is seriously contaminated or not.

If entry to a seriously contaminated area were essential, the working parties would have to wear ordinary respirators, as the amount of dust created by rescue operations and demolition is very heavy and it would be necessary to avoid its inhalation or ingestion. For the same reason, smoking, eating and drinking would have to be forbidden in the contaminated area and casualties would have to be covered (especially their wounds) and protected from further contamination. No doubt an expendable outer garment such as a thin, light boiler suit, gloves, hood and overboots could be provided so that on return to base, a few seconds would suffice to remove practically all contamination into a bin for later disposal. It is worth noting that the respirator and rubber boots provided for protection against "CW" contamination would be adequate for "A" contamination. In the same way, gas cleansing stations and gas capes would serve a dual purpose.

Contamination of Water and Food.—The requirements raised in Questions 4 and 5 are considered to be specialized in nature.

A little reflection shows that it would be quite impracticable to monitor local water supplies and individual food stocks in shops and homes in the fall-out areas, which would probably be some miles away from the burst. However, the immediate dangers from contaminated drinking water and food may not be very serious if the degree of probable contamination can be forecast soon after the burst as indicated above. Those living downwind in a region of probable fall-out would then have to be warned not to eat any food which had been exposed in the open air and not to drink from open sources. Tinned or wrapped food would be reasonably safe and so would tap water as the reservoirs supplying large towns are often some distance away and there is also a high probability that radioactive particles would be adsorbed on mud and on sand used for filtration. In the case of London, there is a long delay between water leaving the Thames and issuing from the tap. Bottled mineral waters (and beer) could be requisitioned to help in the emergency, and

distillation of contaminated water is an effective cure. Water from covered wells (except surface wells) could generally be relied on.

Sooner or later exposed food stocks (including crops) and water would have to be tested, however. Proper allowance would have to be made for dilution, decay of activity and the incidental removal of radioactivity by normal processing. This would be a task which could hardly be performed by a monitor with a standard instrument.

Question 6 concerns the detection of radioactivity inside the body and falls into the same category of specialization. The patient would probably be examined by what are now standard procedures in hospitals where radio-isotopes are used clinically. In fact, the officers and technicians of the R.A.M.C. who had been trained in radiation techniques and in the use of radio-isotopes together with their resources of instruments and laboratory facilities would be invaluable for *ad hoc* investigations and tests, especially in connexion with casualties. It is open to question whether medical officers could be spared at such a time for the more general investigations but to reinforce them it is suggested that there should be available specialized instruments which can be operated by technically trained officers in order to monitor food and water and equipment, and to meet any unforeseen situation which may develop. It might be necessary to modify or adapt instruments on the spot and it is apparent that their operators will have to be able to *think* against the enemy. There are possibilities of the use of radioactive materials by saboteurs in ways which would not be found in the textbook.

Attack by Atomic Weapons in the Field.—The stress has been placed so far on the use of the Atomic Bomb on cities either at home or overseas where the Army would, no doubt, be called upon to aid the Civil Power and support the Civil Defence Organization. There is also a possibility that troop concentrations might be such as to justify (economically) the use of an Atomic Bomb as a tactical weapon. The probability of contamination in this case would depend to some extent on the military situation. During an advance the enemy would not wish to contaminate heavily the ground before him. During retreat this might be his object.

The much-discussed use of radioactive by-products as a contaminant to replace or augment chemical warfare agents would also be more likely in retreat than in attack. There are obvious difficulties in applying highly radioactive substances to the ground and in maintaining their activity, but a heavily contaminated minefield would be a formidable barrier.

Whatever the form of the contamination in the field, the same general arguments used in the foregoing paragraphs will apply, and the same instruments could be used to reconnoitre the ground, to measure the total dose received during an operation and to detect contamination on the clothes, person or equipment. The contamination of food or water would be less likely for an Army in the field than for a civil population.

One very important difference between the contamination resulting from the bomb and deliberate contamination is that the latter may not decay

rapidly as does the former. It is possible by storage of the material to allow the short-lived constituents to die away leaving only the longer-lived isotopes. These will persist much longer than the fresh fission products from the bomb.

Instruments for Radio-Active Contamination.—To summarize, the following three standard instruments may well be required by the Army to meet the possibility of contamination by radioactive substances :

- (1) The Dose-Rate Meter ;
- (2) The Individual Dosimeter ;
- (3) The Contamination Meter.

Details of Service versions of such instruments are not available, but in the Civil Defence Manual [6] a description of the general appearance and operation of similar instruments may be found.

The Measurement of Flash Dose of Radiation.—With regard to Question 7, the medical—and also command—requirement to know whether those exposed to the radioactive radiations from the bomb at the time of burst will be fit troops, will recover after medical treatment, will be sick for a long period or will almost certainly die, is not likely to be met by a somewhat expensive and complicated electronic instrument. Something is needed which is as closely wedded to the individual as his identity discs and which will be at the same time light in weight, small in size, cheap to produce, reliable, able to withstand rough treatment, able to be interpreted quickly without instruments and which will consume the minimum of effort and valuable material to produce. These requirements are dictated by the large numbers required for personal issue. It is unlikely that a casualty, probably suffering from shock, burns and lacerations, or perhaps unconscious, would be able to say exactly where he was when the bomb detonated and the amount of shielding between him and the explosion. The dose suffered would depend upon whether he was upstairs or down, upright or prone, in front of a window or behind a comrade. Personal issue of an indicator, therefore, seems to be the only solution.

Various indicators have been suggested in the technical press. For instance, chloroform [7] would release a small quantity of acid as a breakdown product, and if an ordinary acid-alkali indicator were included in a small tube, its colour would be a measure of the dose sustained. There are always difficulties in the mass production of such an article but they would not appear to be insuperable and would surely be justified by the effect on morale alone. In conjunction with clinical observations (vomiting, etc.) a rough but adequate idea of the individual's dose could be built up.

NOTE.—All figures used in this article are to be found in "The Effects of Atomic Weapons" published by the Atomic Energy Commission, U.S.A. September 1950.

REFERENCES

- [1] ANON. (1948) *J.R.A.M.C.*, **91**, 158-178 ; 219-238 ; 282-293.
- [2] MARLEY, W. G. (1949) *Proc. Roy. Soc. Med.*, **42**, 927-934.
- [3] National Research Council (U.S.A.) (1946) General Report of the Atomic Bomb Casualty Commission.

- [4] CRONKITE, E. P., and CHAPMAN, W. H. (1949) *Military Surgeon*, **104**, 7-21.
 - [5] LEROY, G. V. *Archiv. Int. Med.* (to be published).
 - [6] Civil Defence Manual of Basic Training. Vol. II. Pamphlet No. 6. Atomic Warfare. H.M.S.O. 1950. Two shillings.
 - [7] *Nucleonics*, **6**, 6, June 1950, p. 66. A review of a publication UCLA-58 by G. V. Taplin and C. H. Douglas is given.
-

MEDICAL PROBLEMS IN CHEMICAL WARFARE¹

BY

Colonel JOHN R. WOOD²

Medical Corps, United States Army

IN 1943 I predicted [1] that the task of delivering a successful chemical attack against the American people was so great that our enemies would not consider it worth trying. With the possible exception of the nerve gases, it seems equally unlikely today that chemical agents offer our potential enemies effective weapons for long-range attack. The problems of civil defence against chemical attack, therefore, can be reduced to consideration of a single group of chemical agents, the nerve gases, until such time as an enemy may be able to establish a base at or within our borders.

The nerve gases were first developed by the Germans [2] but are now well known to both our allies and our potential enemies. They are a family of chemicals having the common property of irreversibly inhibiting the enzyme cholinesterase. They are nearly colourless, essentially odourless liquids, which yield toxic vapours on evaporation. More toxic than formerly known chemical warfare agents, they may gain entrance to the body by inhalation of the vapour or by absorption of the liquid agent through the skin, the eyes or the gastro-intestinal tract [3].

The symptoms induced are due largely or entirely to the inactivation of cholinesterase. This leads to the accumulation of acetylcholine in both the central and the peripheral nervous system and to acetylcholine poisoning. Most of the classic symptoms of both muscarine and nicotine poisoning develop. In severe cases the excessive accumulation of acetylcholine at the myoneural junctions causes a curare-like flaccid paralysis [4].

Man and experimental animals exhibit a rapid progression of essentially identical symptoms [5a]. Exposure to traces of the vapour causes pin-point constriction of the pupils in a few minutes, usually accompanied with mild paroxysmal bronchoconstriction and a watery nasal discharge. A slightly greater exposure induces ciliary spasm, pain on focusing the eyes and a drawing sensation or pain in or back of the globes, radiating frontally or to the occiput, and is often accompanied with moderate photophobia.

At these low doses the paroxysmal bronchospasm does not produce anoxia, lasts only a few days and is readily relieved by small doses of atropine sulphate. The miosis, ciliary spasm and headache are more persistent and do not yield

¹Reprinted by kind permission of the Editor of *The Journal of the American Medical Association*, October 21, 1950, **144**, 606-609. Copyright, 1950, by American Medical Association.

Read before the Section on Miscellaneous Topics at the Ninety-ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

²Chief of the Medical Division, U.S. Army Chemical Center, Maryland.

to the usual parenteral doses of atropine. The ophthalmic administration of homatropine hydrobromide is required for relief of mild cases, or repeated instillations of atropine, for the severer cases, until good mydriasis is obtained. The headache and eye pain are usually relieved promptly with the induction of mydriasis. The ophthalmic instillations may have to be repeated several times, as miosis and ciliary spasm frequently recur [5b].

The inhalation of larger doses of vapour, or the absorption of liquid nerve gas by other routes, causes a rapid and severe bronchospasm, which obstructs both inhalation and exhalation. The subject becomes confused and cyanotic, may have nausea and vomiting and soon falls unconscious [5a]. Meanwhile, his blood pressure falls to shock level; severe bradycardia develops, and cardiac arrest may occur as a temporary or terminal event (fig. 1) [6].

If the subject can be given medical assistance before the anoxia is too profound and prolonged, large intravenous or intramuscular doses of atropine may completely reverse the cardiorespiratory condition. The bronchial tree relaxes; ventilation of the lungs becomes normal; anoxæmia is rapidly overcome; the slowed heart regains its rhythm and normal rate, and the blood pressure rises above normal and quickly drops again to normal level (fig. 1) [6].

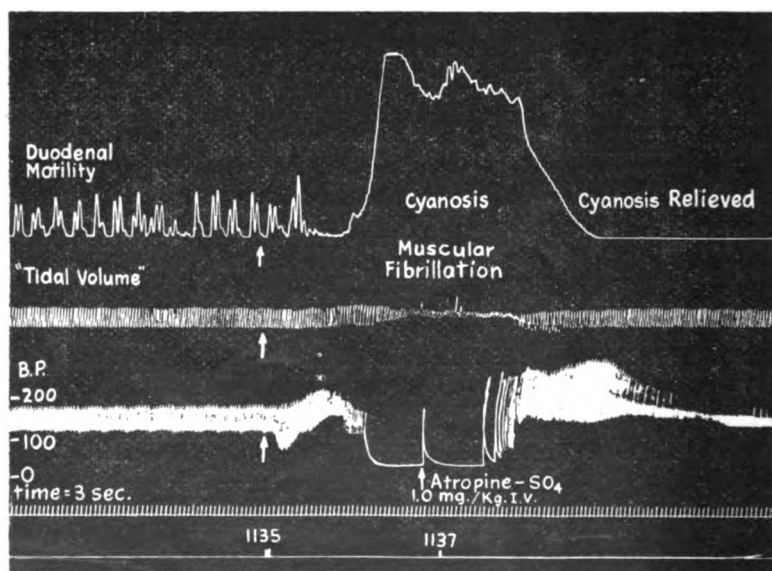


FIG. 1.—The effects of nerve gas and atropine on a dog. Nerve gas was injected intravenously into dog at first marker (arrow) and atropine sulphate at second marker. Upper, the effects on intestine (duodenum); middle, the effects on tidal air (under artificial respiration), and lower, the effects on blood pressure and heart rate.

Relatively large doses of atropine are required for the severe cases, and the principal danger lies in under-treatment. It is essential that the atropine be given by a route by which it reaches the circulation rapidly. Intravenous

administration is preferable, from the standpoint both of rapidity of action and of ease of control of dosage. The intramuscular route may be used if the patient is not cold or in shock. Absorption from the subcutaneous and oral routes is too slow for the initial treatment.

Doses of 2 mg. (1·30 grain) of atropine sulphate should be repeated every few minutes until the cardiorespiratory symptoms are relieved and some dryness of the mouth appears. The amount of atropine some patients can take without the development of atropinization is amazing. Thereafter, smaller oral or parenteral doses of atropine must be administered every few hours for at least several days, since the poisoning is far more persistent than the duration of atropine effects [7].

Some of these patients will show nicotinic and central nervous system effects, which persist or appear after the muscarinic effects have been controlled with atropine. These effects range from muscular fasciculations and spasmodic twitchings possibly to *grand mal* seizures of clonic and tonic convulsions. The convulsions may be controlled, to the point that they do not threaten life, with thiopental sodium, trimethadione (tridione^R) or ether anaesthesia (fig. 2).

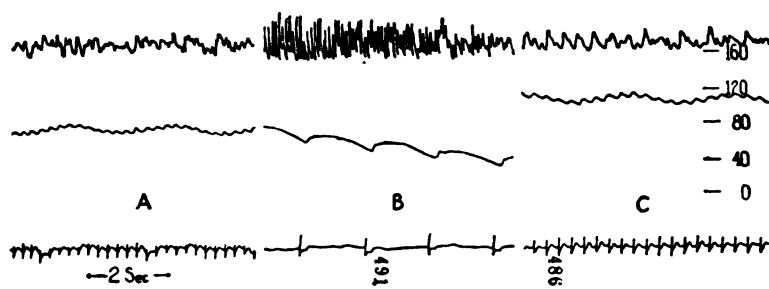


FIG. 2.—The effects of nerve gas and trasantine^R methiodide on brain waves of a rabbit. Upper, electroencephalogram (motor cortex); middle, blood pressure, and lower, electrocardiogram. *A*, normal tracings; *B*, three minutes after the intracarotid injection of nerve gas (convulsive pattern, falling blood pressure, pronounced bradycardia), and *C*, thirty seconds after the intravenous injection of 2·5 mg. per kilogram of body-weight of trasantine^R methiodide (restoration of normal electroencephalographic findings and circulation).

Overdosage of thiopental (or any barbiturate) must be avoided, as it acts synergistically with the nerve gases in depressing respiration. A 20 per cent solution of trimethadione, given intravenously in 1 gramme doses every fifteen minutes, with a maximum dose of 5 grammes, has the advantage of depressing cortical activity effectively without depressing respirations [8].

If the severely affected patient cannot be treated promptly, profuse salivation, intestinal hypermotility and spasm and incontinence of urine and faeces will develop. The profound anoxia and increasing accumulation of acetylcholine in the nervous system lead to intermittent then almost continuous *grand mal* convulsions, until flaccid paralysis supervenes [5a].

The use of atropine is dangerous in severe cases with profound and prolonged anoxia. In experimental animals the sudden release of the heart from vagal control, with the attendant increase in work by the cardiac muscle, in the presence of severe anoxia, leads immediately to ventricular fibrillation and death in a high percentage of the animals [9]. The administration of atropine in these cases should be delayed until the lungs have been ventilated and the heart has made some recovery from anoxia. The convulsive seizures can be controlled, or largely prevented from reappearing, by intravenously administered trimethadione or thiopental sodium, but the urgent problem in these cases is the paralysis of respiration.

At this late stage a very considerable relaxation of the bronchial tree occurs spontaneously, but respiratory paralysis prevents effective respiration. The paralysis is both central, due to anoxia, and peripheral, due to muscle fatigue and the curare-like blocking of the myoneural junctions of the diaphragm and accessory muscles of respiration by excessive amounts of acetylcholine. The chest is flaccid and collapsed. The usual methods of artificial respiration, such as the Schaefer prone pressure method or the Eve tilt table method are ineffective or impractical [56]. A new method suggested by Emerson [10] may be worth a trial in emergency, but there has not yet been sufficient work to assess its effectiveness properly. This method consists in placing the patient in a prone position, grasping his thighs at the level of the pubis and alternately lifting and lowering his hips 10 to 12 inches. Preliminary trials are said to indicate that this method may effectively ventilate the lungs in cases of flaccid paralysis of the respiratory muscles [11].

The use of an efficient mechanical resuscitator is probably the most practical and reliable method of giving artificial respiration in these cases, provided that the device can be got to the patient, or the patient to it, before irreversible anoxic damage occurs. A light, portable, hand-powered, bellows type resuscitator may be the most practical for emergency rescue work. Animal experiments indicate that forty-five minutes of artificial respiration may be required to restore natural breathing after two or three lethal doses of nerve gas [12].

If the skin should be splashed with liquid nerve gas, it is important to remove the contamination as soon as possible. The safest and most effective method is to swab the skin immediately with an alkaline fluid. Ammonia water, a 5 to 10 per cent solution of sodium carbonate or a 1 to 2 per cent solution of sodium hydroxide is suitable for this purpose. If none of these is available immediately, any available absorbent material may be dampened with water and the area swabbed with this. Swabbing or rubbing the contaminated skin with dry materials must be avoided, as this greatly increases absorption and toxicity. If only dry absorbent material is available, the excess liquid may be gently blotted from the skin, provided wiping and rubbing are carefully avoided, but the contaminated area must be washed with soap and water or swabbed with an alkaline fluid as soon thereafter as possible [13].

Clothing which is splashed with liquid nerve gas should be removed

promptly and left outdoors. Patients should not be admitted to hospitals or other enclosed spaces until all liquid nerve gas contamination of skin and clothing has been eliminated, because the vapours from such contamination will endanger other patients and hospital personnel.

This information may be useful in dealing with poisoning by some of the newer insecticides, notably parathion and tetraethyl pyrophosphate (TEPP), which are also powerful though less dangerous anticholinesterases [14].

REFERENCES

- [1] WOOD, J. R. (1944) Chemical Warfare: A chemical and toxicological review, *Am. J. Pub. Health*, **34**, 455-460 (May).
- [2] COLLOMP (1949) The Trilons, Technical and Scientific Information Bulletin 23/G French Ministry of War (Jan.), pp. 7-48.
- [3] Unpublished data.
- [4] Unpublished data. GROB, D., HARVEY, A. M., LANGWORTHY, O. R., and LILIENTHAL, J. L. (1947) The Administration of di-isopropyl fluorophosphate (DFP) to man: III. Effect on the central nervous system with special reference to the electrical activity of the brain, *Bull. Johns Hopkins Hosp.*, **81**, 257-266 (Oct.). FREEDMAN, A. M., WILLIS, A., and HIMWICH, H. E. (1949) Correlation between signs of toxicity and cholinesterase level of brain and blood during recovery from di-isopropyl fluorophosphate (DFP) poisoning, *Am. J. Physiol.*, **157**, 80-87 (April). HUNT, C. C. (1947) The effect of di-isopropyl fluorophosphate on neuromuscular transmission, *J. Pharmacol. & Exper. Therap.*, **91**, 77-83 (Sept.). JONES, H. W., MEYER, B. J., and KAREL, L. (1948) The relationship of cholinesterase inhibiting activity to the toxicity of some organic phosphorus compounds, *J. Pharmacol. & Exper. Therap.*, **94**, 214-219 (Nov.). RIKER, W. F., and WESCOE, W. C. (1949) The relationship between cholinesterase inhibition and function in a neuro-effector system, *J. Pharmacol. & Exper. Therap.*, **95**, 515-527 (April).
- [5] (a) WIRTH, W. (1949) Personal communication to the author, Wood, J. R. Unpublished observations. (b) Informal Note 273/49, Physiology Section, Chemical Defense Experimental Station, Porton, England.
- [6] WILLS, J. H., and McNAMARA, B. P. Unpublished data.
- [7] GROB, D. (1949) Observations and Recommendations on the Treatment of Poisoning with Anticholinesterase Agents, Contractor's Informal Report to Medical Division, Army Chemical Center, Mv. (November).
- [8] HIMWICH, H. E., ESSIG, C. F., HAMPSON, J. L., BALES, P. D., and FREEDMAN, A. M. (1950) Effect of trimethadione (tridione) and other drugs on convulsions caused by di-isopropyl fluorophosphate (DFP), *Am. J. Psychiat.*, **106**, 816-820 (May).
- [9] WILLS, J. H., and others. Ventricular Fibrillation in Delayed Treatment of TEPP Poisoning, Federation Proc., 1950, to be published.
- [10] EMERSON, J. Personal communication to the author.
- [11] WHITTENBERGER, J. M. Personal communication to the author.
- [12] FAIRLEY, A., DECANDOLE, C., DOUGLAS, W. W., and WILSON, K. Personal communication to the author.
- [13] Informal Note [5b]. HARVEY, J. C., and JOHNS, R. J. Unpublished data.
- [14] GROB, D., and others. (1949) Death due to parathion, and anticholinesterase insecticide, *Ann. Int. Med.*, **31**, 899-904 (Nov.). GROB, D., and HARVEY, A. M. (1949) Observations on the effects of tetraethyl pyrophosphate (TEPP) in man, and on its use in the treatment of myasthenia gravis, *Bull. Johns Hopkins Hosp.*, **84**, 532-567 (June).

SOME ASPECTS OF THE NATIONAL HEALTH SERVICE NATIONAL HEALTH SERVICE ADMINISTRATION

BY

WILLIAM MACKIE, M.B., Ch.B., D.P.H., D.T.M.&H.

Late Colonel Indian Medical Service

Medical Superintendent, Perthshire General Hospitals

STATE MEDICINE, or the direction of civil practice, has existed in this country for many years ; but this direction was limited in extent. The various statutory obligations of Local Authorities and individual medical practitioners in matters relating to Public Health, Public Assistance, Infectious Disease, and National Health Insurance, have, during the past hundred years or so, given to the State extensive powers of direction concerning the health of the nation. On the appointed day—July 5, 1948—for bringing into effect the National Health Service Acts relating to England and Wales, Scotland, and Northern Ireland, the State assumed complete control over all matters affecting the health of the civilian population. But full State control of medical practice in the Armed Forces has been in existence for a considerable length of time. It is noteworthy that, in public health affairs, civilian medical practice followed the lead given to it by military and naval medicine. In “A Short History of Medicine” Singer states : “The eighteenth century saw some of Petty’s principles put into practice. There was, as yet, but one section of public life in which scientific principles of preventive medicine could be applied. Only in the Army and Navy were the sufferers from disease under adequate control and observation, and only there were proper statistics of sickness and health available. Thus, many of the most important movements in Preventive Medicine during the eighteenth century, both in England and other countries, were initiated by naval and military surgeons.” It is not suggested that the administration of the National Health Service should be shaped according to the form of administration found most suitable for military medicine—there are many vital factors that will prevent this—but some workable form of administration for such a vast organisation is essential. As anyone experienced in military medical administration will readily recognize, the form of administration covering all aspects of civilian medical practice under the National Health Service Acts must indeed be complex. It might perhaps not be inappropriate if, at this juncture in the development of the National Health Service, a study and comparison of the two forms of administration—the long-established military and the more recently developed civilian—were to be carried out.

The prime object of any health service is the promotion of the health of the population that it is designed to serve : in this respect, the National Health

Service does not differ in any way from its military counterpart. But there are very great differences in the composition of the two populations and in the methods of disposal of unfit members of those populations. Military medicine deals with a predominantly male population of a comparatively well-defined age-group : civil medical practice is concerned with persons of all ages and both sexes. All new entrants to the military population undergo a medical examination prior to admission, and are therefore presumably healthy : except in the case of admission to a few civilian trades and professions, there are no similar medical examinations in civil practice ; any examination that is carried out is done, generally speaking, at the instigation of individual members for life insurance purposes. Military personnel found to be unfit for service within the military population are boarded out of service ; and the responsibility for their subsequent care rests with the civilian medical service. Nevertheless, despite these differences, which will result in differences in the incidence and types of sickness, it will be agreed that the prime objects of military and civil medicines are the same.

All medicine, irrespective of the nature or composition of the population, can be divided into two broad categories : medicine of the community, and medicine of the individual. In civil life, the former is the responsibility of the Medical Officer of Health, and the latter that of the general practitioner : the hospital service, by providing additional specialized knowledge and treatment, and nursing care, in the interests of individual medicine, and isolation accommodation in the interests of group medicine, is supplementary to both of these. It is obvious that, in any well-regulated society, there must be complete co-ordination of these three groups—the general practitioner, the Public Health, and the hospital—if a complete health service for the benefit of society is to flourish. Individual medicine cannot function satisfactorily without group medicine, which, in its turn, is dependent on individual medicine: the hospital service, as an instrument of society, would fail without the assistance of either. These three groups are recognized by the National Health Service Acts, but, before considering how the co-ordination of the groups is being carried out, let us examine how the problem has been dealt with in military medical practice.

Here there is the same division into individual, group, and hospital practice, but the co-ordination is so complete that it may sometimes be difficult to dissociate one from the other. Gone are the days when a regimental medical officer—the general practitioner of the Army—was an isolated individual working alone within one single unit of the Army ; he now takes his rightful place as a member of the hospital staff, in which capacity he has access to all facilities of the hospital, and can readily come in contact with the specialists in charge of the wards of the hospital. He is not primarily a regimental medical officer dealing solely with the patient of his own particular unit ; he is primarily a hospital medical officer treating any patient admitted to the ward or wards to which he may have been posted. There is thus a very close co-ordination of individual medical and hospital practice in the Army.

In group medicine in the Army, we find an even closer linkage. There are certainly specialists in Hygiene corresponding to the Medical Officers of Health in civil life, but these officers have little or no executive power. Their main duty is to act as advisers in hygiene to the Directors, Deputy Directors, and Assistant Directors, of Medical Services. Executive action is not carried out by hygiene specialists, or even by officers under their control, but by officers on the staffs of hospitals. In military stations, the Officer Commanding the Hospital is automatically the Senior Executive Medical Officer, and, as such, acts as adviser in hygiene to the Officer Commanding the Station ; but, in addition, he has direct control of all executive action in affairs of hygiene in the station through the medium of his hospital medical officers, each of whom, in his capacity as regimental medical officer, directs the unit sanitary squads. In India, the power of direction of the Senior Executive Medical Officer was even greater : under the Cantonments Act of 1911, he carried the appointment of Health Officer of the Cantonment, and, in that capacity, directed all executive hygiene action concerning the civilian population living within cantonment boundaries. Such was the position prior to the formation of the dominions of India and Pakistan ; and, I imagine, still is.

In military medicine, the stress is undoubtedly on preventive action, the results of which are gauged by the occupancy rates of hospitals. A low hospital occupancy rate represents a higher degree of efficiency of the military medical services than does a high occupancy rate. The fitness of an Army, in regard to its fighting capabilities, depends on its general health and well-being, a high state of which can only be achieved by a complete co-ordination of the three groups of medical practice, individual, group, and hospital.

How does this compare with conditions in civil life under the National Health Service Acts ? Admittedly, the results achieved by civil and military medicine are not comparable, on account of the differences in the composition of the population ; but the methods employed in achieving the results can be compared. Prior to July 5, 1948, there was in existence one type of statutory organization dealing with State Medicine—the Local Authority. This body was responsible to the Central Government for all Public Health affairs. General practitioners were primarily individualists with a responsibility to their patients, and, except for duties under Public Health and National Health Insurance Acts, had little responsibility to the State. Under the National Health Service Acts, their responsibilities to their patients have in no way been lessened, but their responsibilities to the State have increased. To co-ordinate and regulate the efforts of the general practitioner branch of the Service, it was considered that regulating bodies should be established—Executive Councils were accordingly set up. The position with regard to the hospital service was somewhat similar : certain hospitals were under the control of the Local Authorities, while others were managed by voluntary organisations. To co-ordinate their management under the National Health Service Acts. Regional Hospital Boards were formed, each of which controls the hospitals in its own region through the medium of Hospital Management Committees, or, in

Scotland, Boards of Management. There is a slight difference between the forms of administration adopted by England and Wales, and Scotland: in England, teaching hospitals are controlled directly by the Ministry of Health; whereas in Scotland they are under the control of Regional Hospital Boards, but the general principle is the same. We find, therefore, in civil medical practice, three different authorities responsible to the Central Government for the conduct and management of the three groups of medicine. In individual medicine, the Executive Councils, and, in group medicine, the Local Authorities, are each responsible directly and separately to the central government; in hospital practice, the Hospital Management Committees and Boards of Management are responsible to the Central Government through the Regional Hospital Boards.

It is difficult to devise a form of administration that will meet present needs, but sufficiently flexible to cover possible future circumstances; to do this, it is essential that very careful consideration be given to possibilities that may arise in the future. This is analogous to those exercises known to all military officers as appreciations of the situation. In such exercises, it is foolish to attempt to appreciate a situation without due consideration being given to those factors that may influence the attainment of the object: factors affecting one's own forces and those of the enemy; factors not existing at the time, but likely to arise in the future. In considering the planning of the form of administration adopted for the National Health Service, one may be tempted to ask if the administration was devised solely to suit circumstances that were then existent, or whether due regard has been paid to events not existent at that time, but which are now apparent. There is no doubt that the art of medicine is undergoing a change. Social medicine, which embraces a far wider field than that branch of medicine known as Public Health, is rapidly gaining more and more prominence. Public Health itself, during the past hundred years, has undergone many radical changes; but it is becoming absorbed into the Social Medicine of the future—that branch of medicine that affects not only members of the medical profession, but also the economist, the geneticist, the statistician, the social worker, and members of all those professions concerned with the economic and social welfare of the community. It is easy to be wise after the event and to say that the changing faces of medicine could have been foreseen; but one must bear in mind that this outlook towards medicine has probably been brought into prominence as a result of the stimulus given by the inception of the National Health Service. The change would undoubtedly have occurred without this stimulus; but it would have been a much more gradual process.

Medicine, as a whole, is a group of individual specialities, in which general medical practice is itself a speciality; but no individual speciality is self-contained: each is dependent on one or more of the other specialities. But, prior to the inception of the National Health Service, it was possible to distinguish, more or less clearly, one from the other, and medicine thus could be regarded as a series of individual units; the family doctor with his own group

of patients ; the hospital supported and organized by the local community, which took a justifiable pride in the development of its own hospital ; the specialities within the specialities. Only in Public Health can it be said that there was a general measure of national co-ordination ; but even in Public Health there existed, as exists today, a considerable amount of individual local control. Many measures considered essential and recommended by the Central Government may or may not be implemented by local authorities ; and the degree of implementation is in many cases a matter for decision by the local authorities. Social medicine, on the other hand, is not individualistic in its outlook ; it is a matter of national concern, and demands, above all else, complete co-ordination of effort, not only by the administrators of the three forms of practice—general medical, public health, and hospital—but also by all individual members of those three forms of practice.

In any personal service such as medicine, the pattern of the administrative service must conform with the needs and demands of that service. It is impracticable to devise a rigid method of administration and then endeavour to fit a rapidly changing form of personal service into that administrative plan. How then does the triple administrative pattern adopted under the National Health Service Acts conform with the growing demand for Social Medicine ? If medicine had retained its former individualism, the three branches could, without any difficulty, be governed by three distinct governing bodies. But the individualism, as seen in former days, has now merged into one complete National Health Service : that, at least, is the intention of the Act, which states that its purpose is “ to promote the establishment of a comprehensive health service designed to secure improvement in the physical and mental health of the people.” It naturally follows that, if it is to be comprehensive, the health service can only be made effective by an amalgamation of its three main branches and by a co-ordination of their effort, not by a perpetuation of the individualism of the past. The form of administration at present in force does not provide this amalgamation : on the contrary, it tends to aggravate the former individualism. How frequently do we hear nowadays that the hospital service is the most favoured branch of the Service to the detriment of the general practitioner and the public health branches ! How frequently do we hear complaints from the general practitioner branch that the hospital service is assuming more and more the responsibilities with regard to the treatment of the patient that the general practitioners consider to be theirs ! Whether or not these reports and complaints are justified is beside the point : it is undeniable that the three branches of the service are not working in the close harmony that one would expect. The Public Health Service, which has been built up over a period of many years, is rapidly losing ground, as shown by the decreasing numbers of candidates for degrees and diplomas in public health ; there are not the opportunities that formerly existed in this field of medicine, or, if there are, they are not apparent. The Medical Officer of Health is no longer responsible for the treatment of patients in hospital ; he can no longer obtain information with regard to hospital patients at first hand, but

has to rely on second-hand information. The three branches have been diverted into three separate and distinct channels.

That is not the intention of the Act, but that is the result of the administrative set-up under the Act. Admittedly, co-ordinating committees, comprising representatives of the governing bodies of the three branches, can be established, but if they are given no executive powers, these committees would be valueless.

Recommendations issued by the Central Government—and most of the instructions issued by the Central Government are issued in the form of recommendations and not directions—to the three branches of the service may be interpreted in three totally different lights in the same area. It is only right that these instructions should be issued as recommendation, because, with the present lack of co-ordination, the Central Government must be totally unaware of purely local conditions ; besides which many interests other than purely medical may be concerned : there is not the same control of all interests by a higher authority as is apparent in military administration.

In view of the changing outlook towards medicine—the Social Medicine of the future—we must endeavour to subordinate our individual interests to the interests of the community and those of the profession. We must endeavour to work in closer harmony ; but we are prevented from doing so by the methods of administration of the National Health Service. The general practitioner still has a place in the hospital ; in certain rural areas they are retained as members of the staff of Cottage Hospitals. As such, they are working in a dual capacity ; as employees of the Executive Councils while treating their patients outside the hospital, but as employees of the Regional Hospital Boards while treating the same patients inside hospital. There is a tendency to drive general practitioners out of specialist hospitals : in such hospitals the specialist must naturally retain full responsibility for the patients in his ward ; but there is no reason why general practitioners, if suitably qualified, could not be employed as clinical assistants to the specialists. The Medical Officer of Health likewise must be brought in closer touch with the hospital. The prevention of illness, and not merely the prevention of notifiable diseases, is a matter that assumes far greater importance under a National Health Service than it did formerly, and can only be carried out by a study of individual cases of diseases. The hospital, in its turn, must extend its specialist service, not only by providing specialist treatment within the hospital as formerly, but also by specialist consultation both in the patient's home and in the Cottage Hospitals staffed by the general practitioner. It must give to the Medical Officer of Health such information as he needs with regard to the records of disease and treatment ; without this he is unable to perform satisfactorily his primary duty as a specialist in preventive and group medicine.

If we are to co-ordinate the work of the medical profession in the best interests of the community, it is essential that the administration of the National Health Service be reorganized to enable us to do so. The channel of action of the three branches must be one and the same. Preventive medicine, in its

widest aspect, is a matter of national importance and it must be co-ordinated nationally, if we are to make any progress. The work of the general practitioner in the home is of as great importance as his work in the hospital field ; the two types of work are inseparable. The hospital specialist must not be restricted solely to work in the hospital, but must take his share in work outside the hospital, in association with the general practitioner and the public health officer. Let there therefore be one body—a Regional *Health* Board, not a Regional *Hospital* Board—co-ordinating the work of the three branches of medicine in the Region. Let the administration follow the pattern set by medicine : let us avoid trying to fit medicine into a rigid and unalterable administrative structure.

It might be argued that a scheme of this nature would merely result in greater administrative convenience without any real benefit to the community. It would, undoubtedly, make for ease of control, if there were one channel of administration only ; but the co-ordination of administrative services that would result must inevitably lead to a greater cohesion of the clinical services with material benefit to the community. The problems that we are facing today, of which the public is becoming more and more conscious, if one may take as a guide the articles that appear from time to time in the Press, are those that concern not one branch of the National Health Service but all three : such as the prevention and treatment of tuberculosis ; the domiciliary and hospital care of the aged sick ; the ante-natal and maternity services ; the School Medical Service ; the School Dental Service, which unfortunately is rapidly retrogressing, as a result of administrative complications, to the detriment of the future health of the community. There are many other problems, but those that are quoted above show how essential it is, if the object of the National Health Service Acts—the promotion of the health of the community—is to be achieved, that there must be complete co-operation between the three branches of the clinical services. On the assumption that the administrative pattern must follow the trend of medicine, the time appears ripe for a re-consideration of our methods of administration. The saving of time, money, equipment, and personnel, in a co-ordinated service, resulting from a reduction of wasted effort, would increase the efficiency of the service.

It might also be argued that a complete co-ordination in this manner would require a full-time salaried service, on the grounds that military medicine is essentially a full-time service ; but that would not necessarily follow : the military Medical Services employ civilian medical practitioners on a part-time basis ; there is no reason why a civil medical service should not continue to employ both full-time and part-time practitioners.

This comparison of civil and military medical administration is one of general principles only. Even if civil medical administration were to follow the lead given by military medicine, it is extremely unlikely that the detail of administration would be similar. The composition of the two populations, social factors, the relative importance of the standards of fitness, the sense of

discipline towards higher authority, are all governing factors in determining the detailed method of administration to be adopted by both forms of medical practice. Nevertheless the general form of military medical administration, whose ultimate object is essentially the same as that of civilian practice, has been built up gradually over hundreds of years, and, in spite of its faults, has withstood the test of time. It remains to be seen whether the administrative organization in civil medical practice will survive in its present form.

FUTURE MEDICAL OFFICERS FOR THE ARMY

PART III.—SOME SUGGESTIONS

BY

Colonel R. H. ROBINSON, T.D.

A.D.M.S., Home Counties District

(Continued from page 136)

WHATEVER steps are taken to attract doctors into the R.A.M.C. as a career, they must cover the points which will be set out later.

It is realized that the suggestions made will entail great added cost to the Medical Services of the Army if all or many are carried out ; obviously all could not be carried out, but it is felt that each should be carefully considered and included in a plan if found to be worthy and attainable. If an efficient and adequately manned Army Medical Service is required then great expense must be faced ; all possible must be done to attract the best young doctor into the Army, and, having got him, to keep him. If the Country is prepared to accept the new civilian National Health Service as one of its most expensive amenities then we must face up to the same thing in the Army ; we must be prepared to give the Army a service inferior in no way to that in civilian life, and we must be prepared to offer the right inducements to the right men to do the work.

(a) The Financial Aspect

It must be ensured that the pay and allowances are comparable to the income which doctors of similar age and qualification can get in civilian practice, regard being paid to necessary expenses which have to be paid on behalf of the practice out of the income (it should not be forgotten that an Army doctor can show very little professional or practice expenses on which to claim Income Tax rebate, whereas the doctor in private practice can show quite a lot legitimately) ; there must be a substantial element to cover greater cost of living when faced with moves of family, changes of station and other costs arising out of the Army officer's rather unstable life.

There should be a pay or allowance element payable when an officer has a quantity of stores and equipment on charge and for which he is financially responsible in the event of loss or damage. There should be recognition, financially, of the fact that, except for the few, officers of the R.A.M.C. have to retire at a time of life when civilian doctors will be reaping their greatest monetary reward and will be continuing to do so for a good many more years (retirement gratuities and pay should be adjusted to cover this).

Pay, gratuities and retired pay should also include elements to compensate for unavoidable loss of professional experience and skill due to the limitations

of peacetime military medical practice, and a loss of market value in competition with civilian practitioners when the medical officers leave the Army.

It is possible that the new basic rates of pay recommended by the British Medical Association (and published in the *British Medical Journal* Supplement dated April 2, 1949) may cover all the points raised—one has not got access to the figures or information necessary to compare the financial benefits of civilian practitioners *versus* medical officers of the R.A.M.C.¹; there is an impression that, by and large, the civilian aged say 65 will still be better off than his counterpart who chose the Army as the place in which to practise his art.

More adequate opportunities should be given for medical officers to get extra pay for specializing, even if they are not employed in the specialty, for obtaining additional qualifications, and so forth.

Pensions must be such that they do not die with the death of the retired officer. Compared with the doctor in civilian life the Army doctor does not, and cannot, save so much for the days of retirement. Apart from the inroads due to death duties, etc., the civilian doctor's widow gets the full benefit of her husband's savings, less death duties. In the case of the Army doctor the savings may be small, and early death of the husband may cause great hardship to the widow—a continuation of a reasonable widow's element of the pension should be secured and would be attractive. Contributory provident schemes are usually expensive and a big drain on current pay.

There is the danger that improvements in pay rates for medical officers may result in a "debasing" of the Medical Services, in other words, there may be a reduction in the number of higher ranks in the Service, so that Major-General appointments may be reduced to Brigadiers and Colonels appointments and so on. Such an occasion would undo much of the good arising out of improved pay conditions, because it would remove the promotion and rank incentive, and would generally lower the status of the officers of the Army Medical Services; the high esteem and regard for the Army doctors would gradually lessen. Already in civilian practice there has been noticed a lessening of regard for the doctors on the staffs of hospitals by the so-called governing bodies of the hospital, and the doctor-patient relationship is changing. More and more does the doctor seem to be coming under the control of the laity, and he and his actions are affected by administrative expedencies, by the triumph of the letter over the spirit; many see that as a National Health Service becomes an integral and important part of the Welfare State, so the generality of doctors in the Service become more and more servants to carry out instructions and to implement policies, and less and less are they advisers to be listened to seriously, to be called in to counsel. The medical officers of the Army must not lose their present high esteem and important function, or their direct access to their Commanders. All arms of the Army tend to consider that theirs is the only arm that is indispensable; no Army could do without its transport and its drivers; none could fight without its food and its cooks; what are the use of

¹This article was written and received before the new rates of pay for the Medical Services of the Armed Forces were authorized and published [Ed.].

guns and rifles without ammunition, and so on. But what is the good of any one of these if there is no Medical Service to advise on how to minimize or prevent casualties from disease, from unsuitable rations, unsuitable clothing, from battle stress and so on? Weapons and transport will not win wars unless the men are there to use them; and who keeps the men there or sends them back quickly? In every formation one of the most senior officers with access to the Commander must be the senior medical officer, and his rank and status must be such that he has that access and that he is in all the highest deliberations.

(b) Domestic and Social Problems

These require attention—in war or any other emergency, medical officers must accept domestic upheavals, but in peace there must be reasonable chance for an officer to be stationary for a reasonable time after each move—he must be given a programme of his future which will show some sort of certainty about his periods of service at Home and Overseas; moreover the programme must show some sort of certainty that he will not be moved about from station to station at Home or Overseas, and thus he will be able to cater for occupation of quarters and for suitable school arrangements for his children.

Whilst a large proportion of the younger medical officers serving at the present are, and in the immediate future will be, National Service men it is suggested that these are the officers who should be detailed for temporary duties, for the short tours and for the disturbances—but it is very important that they should know and fully understand that if they become Regular Officers they will not continue to live such unsettled lives, otherwise young doctors serving today on emergency and National Service Commissions will not consider Regular Commissions because of their fear that they will continue to be “pushed about.”

Housing is one of the problems seriously affecting officers of all Arms and Services, and is no less a problem for officers of the R.A.M.C. If doctors are to be attracted into the Army then special efforts must be made to meet the problem—there must be many more quarters tied to the medical officer appointments, even at the expense of other officers; this may be regarded as unfair, but must be accepted if the Army wants its doctors.

Storage of furniture and personal belongings present another problem which requires attention—some married officers have complete house furnishings of their own; others gradually acquire more and more possessions in spite of acceptance of furnished quarters—what to do with these items is a problem facing the officer each time he is posted overseas. Relatives and friends have not got the storage space these days; storage with firms who go in for this sort of thing is expensive, and it is not possible for an officer or his accredited representative to get at the belongings, from time to time, in order to extract items of tropical or winter clothing and so on as required.

It does seem desirable that there shall be one or two stores in the U.K. where Regular Officers can store their furniture and other belongings when they go Overseas or are posted where it is not desirable or convenient to have the

stuff in use. It would be desirable that each officer should have a definite lock-up space in which he can store his furniture in such a way that his own locked cupboards and drawers can be used to store clothing, etc., and can be got at by the owner or his representative, and where boxes and trunks can be similarly approached.

In the Army Officers' Repository there should be lock-up spaces of various sizes according to the officer's requirements. A large building could be divided into sections by means of wire netting ; rent should be low ; access by identity card or letter of authority on any weekday ; anti-moth and vermin precautions should be carried out by the Repository staff (officer to be responsible for measures inside cupboards, trunks, etc.). The officer to be responsible for Insurance against damage or loss by fire, bursting of pipes, etc., and loss by theft.

Another problem is that of education of the family : if an officer serves two years here and three there, and so on, he is almost forced to send his children to boarding school in order that education will be continuous and not subjected to upheavals every two or three years ; if the children are to continue at one day-school (which many regard not only as the cheapest way but also the most satisfactory) then, when the officer moves to another station, or goes overseas, mother has to be left behind—and mother has to have a house to live in—in the end there is additional expense in keeping virtually two homes—one for the mother and children and one for father (lodgings, Mess, etc.). If the officer wants his wife to accompany him Overseas, as he would wish in peacetime, he has to leave his children at a boarding school so that education is not upset ; but this raises other problems, such as what to do with them in the holiday times—grandparents and aunts are not so ready to take them nowadays, what with living in small flats, having no domestic help and so on. The civilian doctor is not faced with this problem ; his child can go to the local day school and live at home ; if it goes to a boarding school it can return home for the holidays—whatever line is taken the educational programme can be continuous. What can be done to help the R.A.M.C. officer in this matter ?

A plentiful supply of scholarships at the schools for sons and daughters of Army officers ; Epsom College and some other schools could provide places in boarding schools ; two or three holiday hostels would provide " Homes " for the children during the school holidays ; it might be possible to get funds from the proceeds of wartime Officers' Messes which have been disbanded, from the Officers' Branch of the R.A.M.C. Fund, officers might contribute to a scheme according to their rank, number of children, etc., and the Government itself might contribute—whatever scheme is worked out it would have to counter-balance all the disadvantages which the Army Officer experiences *vis-à-vis* his civilian counterpart, and also would have to include something extra to act as an inducement, something that would make it worth joining the R.A.M.C.

(c) *Military Training and Status—Discipline*

Training in military procedure, discipline, etc., must be more thorough

and prolonged than it is at present—the plea that doctors are wanted at once to do doctoring must be ignored—the position is serious and must be tackled seriously and drastically if there is to be satisfactory recruitment of doctors in the Army in Regular Commissions. A few weeks at the Depot are not enough to give the young doctors a basic training as soldiers and officers ; if they do not get that training then they will never be successful officers and will not develop an interest in Army life sufficient to make them want to take up the Army as a career. This basic training must be at the very outset, not later on or “in due course”—once the newly commissioned officer of the R.A.M.C. has left the Depot and has taken up the duties of a medical officer elsewhere he may be ruined as a prospective Regular Officer if he has not been so trained that he has confidence in himself as a soldier and officer.

The first three months of service should be at the Depot where the newly commissioned officer will be put through a junior leaders' course, will be trained in man-management and sub-unit command, military law and general procedure ; he must be taught the role of the Medical Service in peace and war ; he must have a thorough grounding in hygiene and sanitation and other subjects encompassed in the term “ Army Health.”

During the early part of his service the medical officer must be thoroughly saturated with the idea that his prime functions are the prevention of injury and disease and the maintenance of health. It is at this stage that the young doctor must be encouraged away from the notion that his job is mainly the diagnosis and treatment of disease and the abnormal, a notion due to present actual function of a great proportion of civilian practitioners—an unfortunate stage of affairs due partly to tradition, partly to training in medical schools and to a wrong conception of the essentials of a National Health Service by those who administer our Health Services.

During the period of training and initiation into Army life, care must be taken not to separate the doctor completely from his professional interests ; he must be given men to examine, to vaccinate and inoculate, to treat for minor injury and diseases—in practice he should be responsible for the medical care of batches of men in the Depot—his appetite for clinical work must be met by attendance at the nearest Military Hospital (where he should receive clinical instruction and have opportunity to practise).

Whilst there is such a shortage of medical officers, so few now entering for “ National Service ” and these staying only a short time, it would not be expedient to subject all new entrants to the training suggested. But it is thought that a dozen hand-picked men might be so trained each quarter ; if three only of these should then attain Regular Commissions after eighteen months' careful employment and training then the scheme would be worth while—they would be the best propagandists.

Now that the non-medical officer of the R.A.M.C. has come to stay, many will feel that the medical officer should not be “ wasted ” doing regimental work, administration and other non-medical duties. At first sight there would appear to be much to be said for this, but we must not lose sight of what we believe to

be the prime function of the medical officer in the Army—namely the maintenance of health, mental and physical health, of the soldier ; only by being a soldier, by being an officer, by experiencing the stresses and strains of Army life and responsibility, the indignities sometimes, the frustrations, the discomforts as well as the more favourable sides, can a medical officer rightly assess a soldier's reactions and correctly advise a Commanding Officer in matters pertaining to the health, in its widest sense, of the unit and the fitness of the individual officers and men.

There should be no such thing as a Specialist of Army Health ; all medical officers should be Army Health Officers first and foremost ; probably it would be too revolutionary at present to suggest that the term " Medical Officer " be dropped in favour of " Health Officer "—that is a thought for future consideration. Efficient Regimental Health Officers (medical practitioners with adequate military training and background) will do much to counter psychiatric breakdown of soldiers and will greatly diminish the need to refer soldiers to psychiatrists.

At this juncture the role of the non-medical officers of the R.A.M.C. might be considered, although such consideration is a diversion from our main purpose. There is a great danger that medical officers will be used only for jobs where medical qualification is necessary and that non-medical officers will be used for all other employment within the Corps—this is a reasonable arrangement whilst there is a shortage of officers to do the doctoring ; but such an arrangement will result in the doctors being untrained and inexperienced in administration and command ; or these higher jobs will be filled by non-medical officers who will be called upon to command medical officers and to direct them in the execution of their professional work—the position of medical officers might be untenable.

It must always be upheld and maintained that *all* medical officers of the R.A.M.C. will be available for *all* duties of the Corps and Medical Services, and that the non-medical officers will be available for those duties that do not require medical qualifications. The differentiation between the two sets of officers must be based on the professional qualification, and the descriptions " medical officers " and " non-medical officers " meet this requirement. The designations " Administrative officer," " Technical officer," etc., must not be allowed to stay ; such designations suggest that the medical officer cannot be an administrative officer, etc. The difficulties arising out of having more than one type of officer in the one Service might be overcome by the adoption of a modification of the methods of the U.S.A. Medical Service Corps—in which the non-medical officers serve.

Not only is it important to make the recently joined medical officer aware of his non-medical duties, and to train him for such, but it is important that during his military career he is constantly reminded of them and is employed in Staff and Administrative duties ; at some stage before he is due for selection for Lieutenant-Colonel he must have been employed for a reasonable period

in one at least of the appointments such as D.A.D.M.S., D.A.D.A.H., Staff Captain, Company Officer, etc.

Examinations for promotion should be started again ; before an officer can be confirmed in the substantive rank of major he should be required to attend a course of instruction and pass a test in administration, military law and staff duties as applicable to the Army Medical Services at Home and Overseas in peace and in war, and in other ancillary subjects—this hurdle should be placed in the path of all medical officers before promotion, whether they are destined for general duties or for employment as specialists. This may be regarded as one of the factors which would discourage doctors from joining the Army ; but it is important that medical officer's status should be upheld and that he should be able to hold his own with officers of other arms and Services—he must not be referred to as “ only the medical officer,” and he must not be looked upon as an officer who would “ not be expected to know.” There is far too great a tendency to set aside medical officers as “ different ”—the “ different ” being frequently used in a somewhat disparaging way, due, unfortunately, to the indifference of some medical officers themselves as far as general military knowledge is concerned.

One wonders if the possession of better and fuller military background by senior medical officers would help some reluctant Commanders and their “ G ” and A/Q men to include their medical officers in their highest level conferences and planning.

It is suggested that more than ordinary encouragement should be given to medical officers to obtain qualifications as interpreters, not just on account of the financial advantages. Encouragement should take the form of one or more of the following : additional pay, additional marks at promotion examinations, free instruction, and so on. Officers undertaking to acquire a knowledge of a modern foreign language should be posted to serve with the Army in a country where the language is spoken, or should be attached to an embassy, legation or other such establishment as an additional military attaché—whilst so serving he should study the language and customs of the country and should effect a professional liaison with the medical profession (civilian and military) of the country—it would be greatly in the interests of medicine and surgery if our own medical officers could meet foreign doctors and become acquainted with their technique and procedure, their practices and customs. In wartime the experiences of these medical officers might be of great assistance whether they return to those foreign countries as allies or as enemies ; if as allies, it would be to our advantage if more of our medical officers could speak the language and were acquainted with the practices of the country, liaison would be so much easier ; similarly, if these officers paid future visits as enemies, even as prisoners, it would help the sick and wounded if the doctors of the two countries could converse more freely and if the practices of the two sides were understood.

Quite apart from increasing the military value of the medical officer this scheme for acquisition of foreign languages would give an added interest to the doctor himself—medical as well as general ; it might be that officers who under-

took to learn a language might be given special leave facilities to visit the appropriate countries.

(d) *Professional (Medical)*

In peacetime the great part of the work of the Regular Medical Officer is concerned with the maintenance of health and the prevention of injury and disease ; in wartime we can expect to find our experts for the treatment of the increased numbers of injured and diseased from the medical officers of the Territorial Army or from the ranks of other medical officers commissioned straight from civilian life. But in peacetime it is still necessary to keep Army medical officers experienced in the treatment of injury and disease because these troubles will occur in the best of Armies in peacetime, and all must be prepared to give the best treatment possible in war, and, what is very important from the point of view of the medical officer himself, he must maintain a high standard of professional therapeutic skill to enable him to compete in the civilian market when the time comes for him to leave the Army and seek a living in civilian life—there is no doubt that one of the factors working against the encouragement of doctors to join the Regular Army is the loss of professional skill in the average medical officer as compared with his contemporary in civilian life—he must be compensated financially for this handicap and the loss of skill must be minimized.

The medical officer's interest in the *prevention* of injury and disease, that is, in the maintenance of health, will be kept up if he has medical charge of troops in barracks, in Camp, or in the Field ; but, unless he is, or becomes, a specialist, he will lose touch with modern trends and technique in the *treatment* of injury and disease—and at present civilian practice is largely diagnosis and treatment and it is in that direction that Army doctors will find themselves handicapped.

Every effort should be made to ensure that all medical officers of the R.A.M.C. up to the senior lieutenant-colonels undergo regular periods of duty in hospitals where they will have opportunity to brush up their general medicine and surgery, or study a special subject. At some stage before he becomes eligible for the rank of substantive major each medical officer should be sent on a course of instruction in general medicine and surgery or in a specialty ; this course should be of up to six months' duration and should be such that the student can qualify "graded specialist" at least in the Army and should enable him to sit for one of the higher professional examinations ; there might even be a series of Army Diplomas obtainable in special subjects (to be awarded in connexion with the Army Medical School proposed later). It is considered that the present "Senior Course" is too late as a course on which higher qualifications are obtained ; in civilian life a doctor would get his higher qualifications at an age much earlier than the average age of officers who take the senior course under present conditions.

Later on medical officers should have an opportunity to take a senior course of instruction, of duration up to twelve months ; during this period they should be able to take the very highest professional qualifications and should qualify

for full recognized specialist status (if not already so qualified); this senior course would be for majors and junior lieutenant-colonels, more or less as at present. In order that the Army as well as the individual shall benefit from the course of instruction, an officer should not be permitted to leave the active list for at least three years after completion of the course.

A final course of instruction should be instituted which should be mainly for the benefit of the medical officer—a pre-retirement course; this should be for officers who have completed say nineteen years' full pay service and are due to retire or go on to the Reserve for one reason or another. These courses should be in general medicine and surgery or in a special subject—and should be in the nature of “refresher courses” to enable the officers to be able to compete in the job market with confidence; the courses should be three to six months in duration according to the length of time since the “senior course,” the length of time away from clinical work, and general merit.

There are many other ideas no doubt which could be utilized to maintain professional interest and efficiency—whatever is done the Army must see that its doctors are no less efficient by the time they reach age 45–50 years than are their counterparts in civilian life at the same age. To get and keep a keen medical officer in the Army that medical officer must be able to see that his opportunities to be a medical administrator, a clinician, a laboratory worker, or a teacher must be as good as he could get in civilian life. For the present, until a well-planned career can be worked out and offered, *and found to be acceptable*, we must depend on the National Service Medical Officer and the Short Service Commissioned Officer for the routine and day-to-day duties of an Army doctor; but it is most important that from the very beginning of the service of these two classes of medical officers there should be every encouragement given to them to stay in the Army—they must be able to see at once that it will pay them to take up the Army as a career—to skimp their initial training will merely put them against the Army as an “unsatisfactory job.”

One word about the retired officer with reserve liability. If he wishes to do so each officer with reserve liability should be permitted to take a “refresher course” in some branch of medicine or surgery after a certain minimum period in the Reserve and provided that his reserve liability has a certain minimum period yet to run. This will help to keep him level with his civilian competitors, will be an inducement, and will be of benefit to the Army in the event of the Reserve officer being called up.

The holding of courses, the possibility of teaching posts, and appointment to clinical jobs raises the question of *when* and *where* all this could be done—this will lead, later on, to the question of a full-blooded medical school for the Army.

So far stress has been laid on the necessity to keep the medical officers interested and efficient in professional (Medical) matters—and there is a tendency to turn all medical officers into specialists. But there are some medical officers, who, whilst having a general interest in medicine, have no

inclination to be specialists, in fact they may have very strong administrative bent ; these tend to derive less financial benefit for good service than do those who get specialist qualifications. For these there ought to be an Army Diploma in General Medical Practice and in Military Medical Administration, etc. The holders of such diplomas should be eligible for classification as graded or full specialists in Administration (Medical), and it should be from such specialists that Commanding officers, D.A.D.s.M.S., O.sC. Hospital Ships, etc., should be found.

Up to this point consideration has been given to some of the things that could be granted or carried out to make the life of a medical officer more attractive ; so attractive that he wants to stay in the Army as a career, and that when he leaves at the end of his career he will have no regrets and will hope that his son will follow him in the same career.

(To be continued.)

“ NUNC DIMITTIS ”

BY
SENEX

“ TEMPORA MUTANTA ”—so may it truly be said of our Service. Even to those of us who have only lived and served during the past half-century changes have been obvious ; if we look back even further than this we can perhaps divide these, so far as they affect our Corps, into six main periods :

The period of the Regimental Medical Service and the A.M.D.

The formation of the Army Medical Staff Corps.

The amalgamation of the former into the R.A.M.C.

Reorganization and modernization after the S.A. War.

Further reorganization after the First World War.

The present.

After the 1914–18 campaigns and as soon as many senior officers who had been retained surplus to establishment, or even within this, beyond their normal date for retirement had been weeded out a new generation took over the reins of office, in both the administrative and the professional spheres. This generation was young, enthusiastic, to some extent, as the result of long periods of war or other service, reactionary and certainly in some degree critical of their older and more senior confrères. The writer was one of these and if he may be permitted a short personal digression it is only to add force to later arguments in this article.

Early one morning in September 1914 he, having received notification of his qualification as a doctor the previous evening, entered the Whitehall premises of the War Office (it need hardly be added by the *front* door) to apply for a commission in the Special Reserve R.A.M.C. On the way up the main stairs he passed a then well-known figure, the late Field-Marshal Earl Roberts. This encounter seemed a good omen, since previously in fifty-six his grandfather, then Assistant Surgeon to the 27th (Inniskilling) Foot, had ridden into Lucknow in the second relief column alongside the then Lieutenant F. S. Roberts, R.A.

After a satisfactory interview with a then well-known member of A.M.D.I. he was passed on to a medical board which, after being persuaded that an old “ athlete’s ” heart *might* have been caused by hastening up the stairs in his patriotic ardour, passed him fit for general service. Ten days later he reported to a Corps Training Centre and, in consequence of six years’ experience in Junior and Senior O.T.C.s, was immediately detailed as acting O.C. of two hundred newly joined recruits with orders to metamorphose them into a

Field Ambulance of Kitchener's Army. Thus began a long period of service in the Corps which, perhaps to some extent by chance or on account of this beginning, was spent mostly on administrative duties.

So it may be understood that his interest in the Corps was of long standing ; he had always intended to enter it and his two great ambitions were *ab initio*, firstly to attain at least the same rank as his grandfather and secondly to command our most famous hospital in which his grandfather had served many years before ; both these ambitions he eventually realized before retirement.

Now we are well embarked upon the sixth major period of reorganization in our Service and once more, as after the First World War, our prospects of success or otherwise in producing an efficient service to operate under and fit in with modern conditions in the New Army, both during peace and in a possible, though we hope improbable, future war, depend upon the efforts and foresight of a new generation ; a generation which to some extent perhaps has become even more reactionary and critical than that of 1919 ; this is indeed only natural in view of their longer periods of active service with resulting experience, responsibilities and tenure of acting or temporary higher rank.

It is to them that the writer dares to give some, it must be admitted gratuitous, advice and perhaps some word of warning.

It is inborn in our nature to criticize and our targets are usually those in power over and/or older than ourselves ; the child criticizes his parent, the man in the street the Government, the employee his employer whether in a State service or otherwise, the soldier his officer, the officer in his turn his commander and the latter the Army Council, the Treasury or the Secretary of State. Such criticism is, alas, too often destructive rather than constructive and few of us care to aim it at ourselves except perhaps in times of stress or difficulty when it is inclined to be self-pitying.

Should we not consider one point before expressing or holding adverse opinions of those referred to above as our targets ? Is it not a fact in the majority of cases that they would not have reached their position of authority unless considered fit for this by those above them as judged by their experience and ability ? Mistakes there always will and must be in selection and square pegs may be forced into round holes but experience and ability must surely tell in the end.

The writer's advice therefore to young officers in our Corps is this :

First and foremost, to keep in mind that well-known, if nowadays perhaps somewhat outmoded cliché, *esprit de corps* ; to forget their personal feelings and desires, even if not completely their personal ambitions, and to subordinate these to a loyalty for and pride in their Corps together with a respect for its history, records and traditions and for those who administer it. In this connexion let his aim throughout his Service career be to make or assist to make his unit, whether large or small, the best in a Corps which he knows or should know to be the best or one of the best in an Army which is the best in the world.

Secondly, to remember always that, however sure we may be of ourselves, however erudite or above the average in our profession, there is always something

for us to learn and that the only way to learn is to sit at the feet of those, if not actually older than ourselves, at any rate senior and of more profound experience.

Thirdly, not to let themselves be carried too far by the present urge to modernize, standardize and even “totalize” those traditions, habits and customs introduced or perhaps inherited by our forefathers and carried on by them before being handed down to us. Extracts from the well-known “Epitaph to Famous Men” in the XLIV Chapter of the Book Ecclesiasticus are perhaps not inappropriate in this connexion :

“Let us now praise famous men, and our fathers that begat us . . . men renowned for their power, giving counsel by their understanding . . . leaders of the people by their counsels, and by their knowledge of learning meet for the people, wise and eloquent in their instructions. . . All these were honoured in their generations, and were the glory of their times. . . The people will tell of their wisdom and the congregation will show forth their praise.”

Fourthly and lastly, never to be afraid of accepting responsibility when this is put upon them. A satisfactory balance between superiority and inferiority complex is always difficult to strike and disaster may be the outcome of either unless subordinated to common sense. In a government or any organized service there is always a tendency to “pass the baby,” downwards if uninteresting or apparently trivial and upwards if difficult or unpleasant ; this can and unfortunately does apply often to professions where the “specialist” may be called upon far too frequently and too readily to solve perfectly simple problems well within the capacity of the “general duty” officer or practitioner provided he is equipped with common sense and is sufficiently sure of himself. True, mistakes may and no doubt will occur, but the task of the senior officer or administrator is rendered far easier and he will have more time to devote to major problems if he knows that he has under him subordinates who can be trusted to take the initiative and responsibility in matters within their competence.

The answer then, provided self-confidence is not abused, is to be sure of oneself, make one’s decision and stick to it and, more important still, to let those under you know that you have made it and intend to carry it out yourself or see that they do so ; if they see that you have confidence in yourself they will have equal confidence in you and be all the more willing to carry out your orders or instructions.

Weakness, whether in decision or in action, will always have a deleterious effect upon discipline and, without discipline, tempered by justice, no Service can operate satisfactorily and to the benefit of those it serves.

The above remarks may sound presumptuous and appear mere platitudes, in this case the writer can only plead in extenuation that observance of these principles to the best of his ability, poor though this may have been, saw him through thirty-three *happy* years of “undetected crime” in our Corps.

A MEDICAL OFFICER WITH THE NATIVES IN BECHUANALAND¹

BY

G. SPANOPOULOS, M.D. Athens

Late Royal Army Medical Corps

TEN months' experience as a medical officer in charge of troops of the Auxiliary African Pioneer Corps from Bechuanaland Protectorate, in their own country during recruiting and training and with them in their work as pioneers in the field, has brought forward a number of interesting and significant points in connexion with their personal hygiene and their susceptibility to and relative immunity from certain diseases.

They have, for example, proved exceptionally sensitive to some ailments and almost unaffected by others, often in direct contrast to European troops living in almost identical conditions.

A common complaint among the Bechuanas is a form of dyspepsia seldom found among white troops. On every sick parade I found a number of cases of men complaining of strong colic pains in the stomach without any abnormal temperature and without any association with the incidence of meals. Pain was experienced at widely varying intervals, before or after meals, while vomiting occurred in only a very few cases. My opinion is, that the frequency of this ailment is due to the daily inclusion of meat in the diet of a people accustomed to consume it only at infrequent intervals, their usual diet in their own country being milk and vegetable foods. Their preferred food is ground maize, but they willingly accept rice, in equal quantities, as a substitute. Green vegetables are less popular, while some will not eat beans, either as a separate dish or as an ingredient in stew or soup. They complain that beans cause stomach discomfort.

The Bechuana troops have been found extremely liable to pneumonia, which appears to affect them much more easily than white troops in similar circumstances. On the other hand the disease is not, as a rule, serious, and the prognosis is not very severe. Its incidence is considerable, but the final effects are slight.

Another interesting point is in connexion with constipation. The Bechuana does not regard himself as in normal condition unless he has two or three motions a day. Otherwise he reports sick because of constipation! Cases respond to normal treatment but I found that the administration of castor oil, while relieving the individual, increased the number of patients. The explanation

¹Reproduced from and by kind permission of the Editor of the *Cyprus Medical Journal* [Ed.].

is simple—they liked castor oil ! My first experience of this characteristic was at Lobatsi, the Bechuanaland Centre of the A.A.P.C., where I noticed that the number of men reporting sick with constipation increased day by day, until an intelligent native medical orderly, with some dispensing experience, called my attention to the matter, and suggested that I should stop giving castor oil. I accepted this suggestion and the number on sick parade, suffering from “Castor-oilitis,” declined. If anyone wishes to bribe a Bechuana, he cannot do better than offer him castor oil. In fact, I personally managed to build two nissen huts to be used as a Camp Reception Station for my patients, in a very short time, by giving one dose of castor oil, to every volunteer labourer, for overtime work.

Gonorrhœa is, unfortunately, probably the most serious disease among the Bechuanas. In the course of recruiting duties in remote parts of the Protectorate I observed many cases although, as among Europeans, men obviously affected invariably denied it. The reason, however, is different : The typical gonorrhœa discharge is regarded as something by no means abnormal. It appears a matter of regret that in the light of present medical knowledge regarding treatment of gonorrhœa, facilities are so sadly lacking in the Protectorate. Treatment for men does not seem to be provided on any comprehensive scale so far as I could observe and there did not seem to be any provision for the treatment of the Protectorate's womenfolk. This is probably a result of the admittedly great difficulty in furnishing adequate hospital facilities in a region so widespread, so sparsely populated and so poor in developed resources as the Protectorate. A serious aspect of the disease appeared to be reflected in the number of men rejected for military service on account of blindness in one eye, probably due to gonorrhœal ophthalmitis of long standing. This loss of man-power could in all likelihood have been avoided had adequate treatment facilities existed previously.

An illustration of the prevalence of gonorrhœa was given when certain detachments, after preliminary training, were allowed to revisit their village for periods of leave. When they returned to the training centre I found that, in some instances, as many as 5 per cent of previously fit men had become infected.

Tuberculosis is rare except among men who at one time or another have been employed in the mines on the Rand. As practically every man who has been on the Rand has at least one gold-filled tooth it is easy by looking at teeth to recognize them and among them it is important to give particular care in the examination of the chest for tuberculosis.

It is remarkable to be able to record that I have not in my experience encountered one case of body or skin parasites.

Among European troops living in similar conditions at the same time, I found cases of scabies, head and body lice, crab lice, in a number of instances but none among the Bechuanas. The explanation appears to be of in the nature of the perspiration. It may be noted that the smell of their perspiration

is quite different to that of a European. This freedom from skin troubles has been maintained in spite of a relative shortage of water for considerable periods.

The bodily reaction of the Bechuana in many ways is considerably better than that of the average European. In furunculosis for example after only one application of a suitable antiseptic the symptoms disappeared, while with the white troops in the same environment it was necessary to continue treatment for a much longer time. This applied also to practically all diseases.

Their capacity for enduring pain impressed me very deeply. I have sometimes been obliged to extract teeth without an anæsthetic and to open abscesses. In their work, handling unwieldy loads, accidents have been frequent and it was necessary in many cases to sever parts of extremities or to insert a considerable number of stitches in wounds. In all cases the resulting pain was borne without any display of feeling approaching that experienced among Europeans.

In general I may say that the Bechuanas as a race are very healthy and exceptionally clean and honest. Malingering is unknown. When they report sick without specific cause, commonly stating that they have "bad blood," their complaint may be attributed to neurasthenia and a dose of any bitter medicine, such as quinine, or a prick with an empty syringe, effects an immediate cure and they resume duty cheerfully.

Occasionally I have had men reporting sick and complaining that they have been bewitched. It is a fatal error to treat such cases with derision for the men are altogether sincere, and consequently depressed to a degree which unfits them for duty. Therefore the doctor must appear to accept their complaint as genuine and adjust his treatment accordingly.

Personally I found by experience that medicines were not effective but that the withdrawal of a small quantity of blood by venesection proved efficacious, the patient being convinced that the "evil spirit" had been drawn forth with the blood.

A quick and simple way of convincing the patient that the "evil spirit" had departed from his body was to pour a small quantity of blood into a dish, where a few drops of peroxide had been previously placed. The patient seeing his blood frothing believed that the evil spirit had indeed departed from his body and lay writhing in the dish before him.

They proved, as a rule, steady workers, good humoured and buoyant in adverse conditions. Although coming from a primitive pastoral life, and subjected to almost unbelievable changes in their mode of living and environment they proved readily adaptable. The European personnel, in whose charge they were, found them good material and teachable, given patience and understanding.

Their mental processes appear slow, but this is most probably due to language difficulties and in certain directions they are undoubtedly astute. They learn thoroughly and do not easily forget what they have learned.

At Random

SOLDIERS' LOADS

THE Load carried by the Soldier has been a problem to all armies and Army Commanders for many centuries, throughout historical records and probably ever since fighting men collected in groups for purpose of battle.

From ancient to modern and even present-day history the story has been the same—a constant conflict between heavy loading with the maximum possible protecting armour and the largest and heaviest weapons of the period as against maximum mobility with minimum loads. In periods of war the soldier usually himself rapidly adjusted his load to his own fancy and capability by throwing away the heavier and, to his way of thinking, the less useful of the impedimenta provided for him for battle; in periods of peace the "G" and "A" Staffs of the day gradually increased the defensive and offensive impedimenta which they considered necessary for the unfortunate soldier to carry into battle. Even in this present century this process has been clearly visible; from the South African War to the 1914–18 War and, in fact, well into the middle of that war a steady increase in equipment and arms, and again from about 1930 to the 1939–45 War a similar steady increase as new items of equipment or weapons were devised.

In the war records of Xerxes, Xenophon, Alexander, Hannibal and Caesar the story is the same, the gradual increase of load and weapons of the first line fighting man and his ultimate defeat by the lightly loaded, quick-moving and quick-striking opponents. In the so-called Middle Ages at Crecy, Poitiers and Agincourt the soldiers with the light equipment and light, long-distance weapons, and therefore with mobility, defeated their highly trained but heavily loaded opponents. In the Wars of Marlborough, Napoleon and Wellington there was the same tendency to over-load the soldier and the ultimate achievement of mobility and victory by reduction of those loads in various ways. Both Napoleon and Wellington took specific action for this purpose by providing transport whenever possible for the carriage of the soldier's kit and less essential fighting equipment and thus securing a light fighting load and increased mobility. Even in the last great war and in the present Korean episode it has been obvious that the quick-striking, lightly loaded, jungle—and mountain—free troops have immense advantage and often victory over their heavier, heavily loaded, road-bound opponents.

Under present conditions of war in this mechanized age the final results are usually victory for the heavily armed and weaponed forces *when* those forces can bring up all their full war panoply and heavy armaments against

less well equipped opponents. But, when it is a matter of infantry against infantry, the load of the soldier is often a decisive factor. And—"Infantry is the arm which in the end wins battles, completes the victory, consolidates and holds the ground won." (F.S.R., Vol. II.)

Throughout historical records and more particularly in abridged histories which deal with the periods and the subject, statements are made of the enormous loads carried by the soldier and the immense distances he marched at impossible speeds and in incredibly short times. Lothian (1921, 1922) in one of the best papers ever produced on this subject ably demonstrates the fallacy of such statements and that, in fact, the ancient Greek and Roman soldier did NOT carry such impossible heavy loads into battle or make such wonderful marches.

It is true that in many armies the first-line, trained soldier staggered on to parade with an astounding weight of equipment and weapons and stood on parade (more or less immobile) supporting that weight. But for fighting the picture was different. "The loads supposed to be carried by the soldier were not in actual fact carried at all—that is in the case of soldiers who were supposed to be on the move—for the old encased soldier was not mobile. The mobile soldier was surrounded by followers, including women, who did the carrying for their heroes" (Cheyne, 1920).

Lothian in his reports clearly shows that in the Greek armies, the Spartan Hoplite was accompanied by a Helot who carried his shield and armour and acted as his servant (Xen., *Hell* IV) and Athenian Hoplites each had an attendant. Therapon, who carried his arms, three days' rations, a casque, tunic, leather cuirass with imbricated metal leaves, armoured leggings, a large shield and a weapon, a lance or short sword, weighing in all some 35 kilograms or 80 lb. (Thuc., III, 17, and Xen. *Anab.* IV, 2).

Roman legionaries who with extremely strenuous training marched 20 miles a day for long periods carried 60 Roman pounds of equipment and weapons = 45 modern pounds, the Roman libra being 12 ounces, hence the legend of the immensely strong Legionary carrying a 60 lb. pack. But even so, the heavily armed Romans were quite unable to pursue their light and stripped opponents in Britain and later the Goths and Huns (Cæs., *Bell.*, Gall V).

The weight of load which the soldier was expected in actual fact to carry was often formidable. In the Crimea British equipment 57 lb. plus blanket and three days' rations, 68 lb. in all, but later this was reduced to 62½ lb. The French carried 72 lb. including rations. But as Parkes quotes: "No great marches have ever been made by men so loaded."

After an interval of peace in the wars of 1866 and 1870 heavy loads again held sway. The Germans lost through fatigue under very heavy equipment some 12,000 men out of 30,000 in seven weeks' marching. But in our Ashanti expeditions minimum equipment and loads were carried by the soldier with most beneficial results and quick victory.

In the South African War the load was just over 60 lb., but the records

show that the practical soldier soon reduced this to manageable amounts by discarding what he did not want.

In the 1914-18 war, a trench-bound mentality gave the unfortunate soldier marching to the front trenches a load of equipment, weapons and clothing which *when wet in winter* weighed as much as 93 lb. It was quite evident that this soldier did not and could not fight with this load.

The trained individual can, of course, *carry* very much heavier loads: the Sherpa porters of Everest expeditions carried some 150 to 200 lb. and there is a record of a hill porter at Mussourie who by himself carried a baby-grand piano on his back from Rajpur to Mussourie, some 4,000 feet up. But then these men do not have to fight.

There are many factors which govern the load carried by or meant to be carried by or actually needed by the soldier.

Primarily of course, though we medical scientists are perhaps inclined to forget or overlook this point, the soldier needs the means for fighting or doing his job as a soldier and any means of defence which his type of job may require. This is the aspect which interests the "G.S. branch" most and leads to the constant conflict between overloading the soldier with weapons and cutting the load down to the physical efficiency of the man.

Then there are other factors such as the man's weight and size, the types of load to be carried, the positioning of that load, climatic conditions, the nature of the warfare, the emergency rations which he may need or must have, transport available, the influence of the enemy's lethal weapons such as gas, mines, contaminants, etc.; factors which have been so ably investigated and recorded by Cathcart, Campbell and Richardson (1923).

In this present number of the Journal we have an interesting and valuable article bearing on this subject and indicating once again the need to reduce the soldier's load and to improve the method by which that load is carried. It is interesting to note in this article that Lippold and Naylor advocate the carriage of the main load by the lower part of the body whereas Cheyne (1920) in an equally convincing article strongly advocated the carriage of the Pack in a higher position.

Of the factors mentioned climatic conditions perhaps produce most variation, there is such a vast difference between Tropical and Arctic conditions between wet and dry countries which decisively affect the clothing which the soldier needs and can carry. The weight difference between the wet clothing of the sodden plains of Flanders or Italy, the steaming jungles of Arakan and Malaya and that of the experimental barrack square in England is perhaps hardly realized by those who are concerned in designing clothing and equipment. The increased weight in highly humid climates is very considerable; for example, a kit containing normal clothing, blankets and bedding for travel by air with weight restricted to 40 lb., when packed in the dry heat of a Delhi hot weather, weighed 40 lb.; but on return from three weeks in the pre-monsoon humidity of Arakan (and not wetted by actual rain) that same kit weighed 49 lb. The clothing of troops after a 12 mile march in Peshawar in

the middle of the hot weather held nearly 4 lb. of moisture and nearly half an ounce of salt.

There are other aspects too to be taken into consideration of the load carried by the soldier in these mechanized days. The air transport of troops is now common practice and allowance must be made in load tables if heavy or bulky kits are in use. For the medical services the heavy and bulky equipment and kit of officer or soldier patients to be transported by ambulance car or aircraft often produces difficulties when transport is limited.

The conclusions reached from experiment and experience are that the soldier can carry 40 per cent of his body-weight, i.e. some 54 lb. added to the nude subject. If 13–14 lb. are allowed for clothing, boots, etc., there remains 40–41 lb. for equipment.

Bedale (1924) reporting on loads carried in industry found that these were—for continuous loads 40 per cent and occasional loads 50 per cent of the body-weight, i.e. 45 and 55 lb. “In practice in heavy industries the maximum average loads approximated to the laboratory findings of the optimum physiological load and they seem to be generally self-protective in the choice of load and know to a nicety their own capacity.”

For the soldier it would therefore appear that his optimum load should be about a maximum of 40 lb.; greater physical efficiency and mobility being gained by less weight, greater defensive and offensive fighting power by more weight. But with the variety of functions of the *Soldier* it would also appear that his load should be in two portions, a basic load of clothing, necessities and skeleton equipment which is common to all (this will also allow ease of manufacture for mass production) and specialized equipment according to the variety of function.

What of the future? Are we in this present period of *Peace* going to see once more a steady increase of weight as new means of offence and defence are introduced; atomic hand-grenades; walkie-talkie communication for all; heat and death-ray generators; clothing heavily impregnated with anti-radiation plastic; infra-red viewoscopes for seeing through the fog of war; tabloid rations, personal parachutes and so on? Or are we going to make sure that, when the next (?) war comes, total weights have been kept within reasonable and physiological limits and that the load carried by the soldier is a practicable possibility?

REFERENCES

- BEDALE, E. M. (1924) I.F.R.B.; Report No. 29; H.M.S.O.
 CATHCART, E. P., CAMPBELL, W., and RICHARDSON, D. T. (1923) *J. Roy. Army Med. Corps*, **40**, 435; **41**, 12–24, 87–98, 161–178.
 CHEYNE, D. G. (1920) *J. Roy. Army Med. Corps*, **46**, 1, 1–13; **46**, 5, 346–353.
 LIPPOLD, O. C. J. and NAYLOR, P. F. D., *J. Roy. Army Med. Corps* (March 1951).
 LOTHIAN, N. V. (1921, 1922) *J. Roy. Army Med. Corps*, **37**, 4, 241–263, 342–351, 448–458; **38**, 1, 9–24.

Correspondence

SKIN DISEASES IN MALAYA

B.M.H.,
ALEXANDRA,
SINGAPORE.

February 2, 1951.

SIR,

I read with interest the article by Lt.-Col. R. W. Scott and R. B. Stablow on the health of the Guards Brigade in Malaya (October Journal, p. 196). I feel that there is one point which requires some elaboration.

They observe that skin conditions were much more common during the first six months after arrival in the country than during the second six months, and put forward two suggestions in explanation of this. Firstly, they say, it may have taken some time before the units became "skin conscious," and aware of the importance of precautionary measures ; secondly it may have been a question of acclimatization.

I would suggest that the true explanation is as follows :

The major cause of skin disability in Malaya among active units is related to various types of fungus infection. Of 64 consecutive cases of fungus infection coming under my care, 60 developed their infection within four months after their arrival in Malaya, and of these 60, 57 developed their infection between two and a half and three and a half months after arrival. From first-hand observation of Guards units in Malaya I know that they were in no way unique in this respect.

I have suggested many times in articles and quarterly reports that the explanation of this remarkable consistency in date of onset of tinea in Malaya is due to a variation of the fungus *Trichophyton interdigitale*, brought out from U.K. between the toes of the European soldier, to *Trichophyton mentagraphytes* which is the main cause of general body infections.

This, of course, is of the utmost importance in prophylaxis. I emphasize that I speak for Malaya (and those areas where similar conditions of temperature and humidity prevail). In other areas the behaviour of *Trichophyton gypsum* is probably quite different.

I am, Sir,

Yours etc.,

KEMBLE GREENWOOD,

Major, R.A.M.C., Dermatologist.

INSIGNIA

ROYAL ARMY MEDICAL COLLEGE,
MILLBANK,
LONDON, S.W.1.

February 5, 1951.

SIR,

In 1878, a special black and gold sash, such as may be seen in Sir Thomas Longmore's portrait in the Headquarter Mess, was introduced for wear by the Honorary Physicians and Surgeons to the Queen. This sash was abolished in 1901, when these officers were accorded the privilege of wearing the aiguillette.

Would this be a suitable moment to suggest that on the introduction of No. 1 Dress (Ceremonial), in which a sash is ordered to be worn, the special sash for Honorary Medical Officers to the Sovereign, including now the Dental Surgeon and Nursing Sister, should again be authorized, not in substitution for the aiguillette but for the sash which is otherwise prescribed for officers of their rank.

I am, Sir,
Yours faithfully,
J. B. NEAL,
Major, R.A.M.C.

Matters of Interest

GOOD SERVICE PENSIONS

It may be of interest to permanent Regular Officers of the R.A.M.C., medical and non-medical, R.A.D.C. and Q.A.R.A.N.C. who have retired, to know that the previous rules for the award of good service pensions were altered in 1949. The present regulations are contained in Section VI of Army Order 18 of 1949. Officers interested are advised to make themselves acquainted with these regulations which, however, do not affect those officers who are at present in receipt of good service pensions under the old rules.

In recent months the following Army Health Officers have obtained the Post-Graduate qualifications noted against their names.

Major	D. H. D.	Burbridge,	C.P.H.(London)
"	T. W.	Carrick,	C.P.H.(London)
"	G. M.	Curtois,	C.P.H.(London)
"	B.	Devlin,	C.P.H.(Liverpool)
"	J. G. S.	Holman,	C.P.H.(London)
"	M. M.	Lewis,	D.I.H.(England)
"	H. L.	Wolfe,	D.P.H.(England)

Review

INJURIES TO THE ANKLE. By J. Grant Bonnin. Published by William Heinemann. Pp. 402. Price 63s.

This book is devoted to injuries to one region. It commences with an historical survey and ends with four complicated tables of the author's classification of fractures about the ankle.

The book is a complete survey of the traumatic surgery of this area. It includes chapters on anatomy, radiology and surgical approaches to the ankle-joint. It gives in detail the author's ideas of the mechanisms of various fractures. It outlines the various methods, including the author's, of treatment of individual lesions.

Has a book of this size dealing with a relatively small area a place in a surgeon's library ?

In the reviewer's opinion this book is a record of the author's ideas and its place is in a reference library. It is a pity that after reading this book, one is faced with complicated tables of classifications of injuries around the ankle-joint. What is needed is a simple classification.

C. M. M.

Obituary

**Major-General ROBERT JAMES BLACKHAM, C.B., C.M.G.,
C.I.E., D.S.O., M.D.**

ON January 23, 1951, at his home in Sussex, Major-General Robert James Blackham, late R.A.M.C., Retired, *C.B., C.M.G., C.I.E., D.S.O., M.D., K.St.J.*, Chevalier of the Legion of Honour, Croix de Guerre (French) with two Palms and Star, Kaiser-i-Hind Medal for Public Service in India, Member of the Order of Mercy, Barrister at Law of the Middle Temple and Gray's Inn, Knt. of Grace and Member of Chapter General, Venerable Order of St. John. Member of the Court of Common Council, Corporation of the City of London. Assistant Commissioner, St. John Ambulance Brigade, in which from his first coming in contact with the movement at Bulford he never lost an enthusiastic interest. He was a Liveryman of the Apothecaries', Glaziers' and Needlemakers' Companies. Clerk of the Worshipful Company of Glaziers and Painters of Glass. Freeman of the City of London. On completion of twenty-one years' service as Clerk of the Worshipful Company of Glaziers and Painters of Glass,

unanimously elected an honorary Member of the Court of Assistants—the Governing Body of the Company—and presented with an antique clock and a cheque by the Court and Livery of the Glaziers' Company, which is distinguished from other City Guilds by representing a branch of an art and not a division of a company. So far as is known the only medical man ever Clerk of a City Company, except the late Group Captain Cooper, Clerk of the only Medical Guild—the Society of Apothecaries.

The son of Dr. William Blackham, he was born in Belfast September 15, 1868, and entered the Service as Surgeon Lieutenant July 29, 1895. Promoted Captain July 29, 1898, Major January 29, 1907, Lieutenant-Colonel March 1, 1915, and Colonel December 26, 1917, he retired April 9, 1923. He was appointed V.H.S. January 1, 1913, and created *C.I.E.* June 3, 1913. He was seconded for service with the Government of India November 4, 1914, to July 31, 1915, and was on half-pay May 18, 1920, to May 12, 1921. He rejoined May 30, 1940, and was relegated to unemployment with hon. rank of Major-General January 30, 1946. He was the author of numerous works on Tropical Diseases, Children, Hygiene, First Aid, etc. and also "Scalpel, Sword and Stretcher"; "Forty Years of Work and Play"; "The Soul of the City—London Livery Companies"; "The Story of the Temple"; "London for Ever—The Sovereign City."

He was on the North-West Frontier of India 1897–1899 with the Khyber Brigade, Tirah Field Force.

He served in France, Belgium and Italy from 1915 to 1918 and in North Russia in 1918–19. Five times mentioned, he was created *C.B.*, *C.M.G.*, *D.S.O.*, and Chevalier of the Legion of Honour, twice awarded the Croix de Guerre, the 1914–15 Star, British War and Victory Medals.

He was special member of Red Cross of Japan on special duty (decorated) under Government of India 1914.

The following were present at the Memorial Service :

The Dean of Westminster (Officiated). Lady Blackham ; Mr. S. E. Mann ; Miss G. French ; Colonel C. P. Robinson ; The Lord Mayor and Sword Bearer, Sir William Gilliatt ; Sir Henry Souttar, Representing Priority Committee of the British Medical Association ; Sir Rowland Smith ; Sir Henry Sharp ; Major-General F. Harris, Representing the Director-General Army Medical Services ; Major-General K. A. M. Tomory, Deputy Director Medical Services, Eastern Command ; Colonel A. E. Campbell, Representing Commandant, Royal Army Medical College, Millbank ; Colonel B. T. Daunt ; Colonel W. A. D. Drummond, Queen Alexandra's Military Hospital, Millbank, S.W.1 ; Colonel C. E. Bull, The War Office ; Mr. Frank Salisbury ; Captain H. L. Oakley ; Mr. W. E. Tanner ; Mr. H. H. Gerrans, Royal Institute of Public Health and Hygiene ; Miss D. Hubbard, St. John Ambulance Brigade ; Mr. M. T. Tudsbury ; Mr. and Mrs. L. T. Newell ; Mr. T. D. Fletcher of the *Nursing Mirror* ; Dr. C. E. Anderson ; Mr. G. D. Roberts, *K.C.*, Master Glaziers' Company ; Mr. A. B. Edwards ; Mrs. N. Carter ; Mrs. A. Hattery ; Mr. W. Parker ; Mr. Gordon Catling ; Mr. F. W. Ingle-Low ; Mr. C. Wallis ; Mrs. C. G. Potier ; Mr. W. C. Turner.

The Pall Bearers were from the Queen Alexandra's Military Hospital.

The Bugler was from the Depot and T. Establishment.

Captain PRYCE HENRY PEACOCK

SUDDENLY in France in July 1950 Captain Pryce Henry Peacock, M.B., R.A.M.C., Retired. Born September 14, 1907, he took the M.B. Dublin in 1932 and was commissioned Lieutenant July 27, 1933, which was subsequently antedated to November 2, 1932.

Promoted Captain May 1, 1934, he retired receiving a gratuity June 12, 1939. He rejoined September 2, 1939, and was released December 28, 1945. He served in France from September 28, 1939, to June 24, 1940, and in East Africa from December 1, 1941, to May 25, 1945, receiving the 1939-45 Star, the Defence and War Medals.

Lieutenant-Colonel J. G. Foster writes :

This has only come to my notice on going through the deaths of graduates Trinity College, Dublin, just received.

He was a very nice boy and I was very sorry he retired, as he was just the type we wanted and I am very sorry to see the notice of his death.

Extracts from the "London Gazette"**HONOURS AND AWARDS*****London Gazette 1.1.51 (New Year's Honours)***

- C.B.* Maj.-Gen. Thomas Young, *O.B.E.*, M.B., K.H.P., late R.A.M.C.
- D.B.E.* Brigadier Anne Thomson, *C.B.E.*, *R.R.C.*, K.H.N.S., Q.A.R.A.N.C.
- C.B.E.* Colonel Samuel Hamilton Woods, *O.B.E.*, F.D.S., K.H.D.S., late R.A.D.C.
- O.B.E.* Lieut.-Colonel Olive Emily Clark, *R.R.C.*, Q.A.R.A.N.C.
Lieut.-Colonel (temporary) John Alistair Manifold, R.A.M.C.
- M.B.E.* Major (temporary) Hamilton James Elverson, M.B., R.A.M.C.
Major James Harrison Vickers, R.A.M.C.
- R.R.C.* Major Ethel Mary Neale, Q.A.R.A.N.C.
Lt.-Col. (acting) Florence May Smith, *A.R.R.C.*, Q.A.R.A.N.C.
- A.R.R.C.* (2nd Class). Major Nina Alys Buck, Q.A.R.A.N.C.
Major Daisy Lister, Q.A.R.A.N.C.

London Gazette 5.1.51

The Venerable Order of the Hospital of St. John of Jerusalem.

Serving Brothers. Colonel John Fitzwilliam O'Grady, *T.D.*, M.B., D.L., R.A.M.C.(T.A.)
Major John Rutherford, M.B., R.A.M.C.(T.A.)

London Gazette 12.1.51***2 Clasps to Territorial Efficiency Decoration***

Colonel G. D. Kersley, *T.D.*, M.D., F.R.C.P., R.A.M.C.(T.A.)
Lt.-Col. (Hon. Col.) J. B. Forsyth, *T.D.*, R.A.M.C.(T.A.)

Territorial Efficiency Decoration and 1st Clasp***R.A.M.C.***

Lt.-Col. G. M. R. Duffus, *M.B.E.*, M.B.
Major S. S. Chesser.
Major J. L. Cowan, M.D., F.R.C.P.E.
Major H. Leiper.

R.A.D.C.

Major A. E. Thompson, H.D.D.

Territorial Efficiency Decoration

R.A.M.C.

Maj. (Hon. Col.) R. K. Debenham, *O.B.E.*, M.D., F.R.C.S.

Major M. J. Bett, M.D.

Major E. M. Elmhirst, M.B., F.R.C.S.

Major W. Lumley, retired.

Hon. Major C. J. M. Irving, *M.C.*, retired.

R.A.D.C.

Capt. (Hon. Maj.) W. S. Matheson.

PROMOTIONS

(1) *R.A.M.C.*

(a) To be Major-General :

Brig. (T/Maj.-Gen.) R. D. Cameron, *C.B.E.*, *M.C.*, M.B., late *R.A.M.C.* 28.1.51

(b) To be Brigadier :

Col. G. E. MacAlevey, *C.B.E.*, *D.S.O.*, *M.C.*, late *R.A.M.C.* 28.1.51

(c) To be Colonel :

Lt.-Col. K. McNeill, *O.B.E.*, M.B. 28.1.51

(d) To be Lieut.-Colonel :

Major C. W. Maisey, *O.B.E.* 28.1.51

(e) To be Major :

Capt. K. Greenwood, M.B., M.R.C.P. 5.12.50

(f) To be Major (S.S.C.) :

Capt. R. P. Leake, M.D. (with seniority 1.9.47) 8.11.49

(g) To be Capt. (S.S.C.) :

Lt. M. P. Cardew 2.1.51

(h) To be Capt. (Q.M.) (S.S.C.) :

Lt. (Q.M.) C. Child 1.2.51

(2) *R.A.D.C.*

(a) To be Colonel :

Lt.-Col. F. H. R. Davey, *O.B.E.* 13.1.51

(b) To be Lt.-Col. :

Major B. E. French 13.1.51

APPOINTMENTS TO SHORT SERVICE AND PERMANENT COMMISSIONS

(1) *R.A.M.C.*

(a) Lieut. Bruce Noel Bailey, M.B., from Nat. Serv. List to be Lt., 21st Nov. 1950, retaining present seniority.

(b) Major Robert Phillipson Leake, M.D. (Res. of Offrs.) from Short Serv. Comm. (Type B), to be Capt., 8th Nov. 1950.

(c) Lieut. R. G. Robinson, M.B., from Nat. Serv. List, to be Lt., 21st Nov. 1950, retaining his present seniority.

(d) Capt. C. S. Sanders from Short Serv. (Spec.) Commn. is appointed to a permanent commn., 6th Dec. 1950, in the rank of Capt., retaining his present seniority.

RETIREMENTS

(1) *R.A.M.C.*

Colonel J. P. Macnamara, M.B.	29.12.50 (Hon. Brigadier)
Capt. M. D. M. Reilly, M.B. (disability)	29.12.50
Capt. (War Subs. Maj.) T. H. Baillie, M.B.	8.1.51 (Hon. Major)
Major J. B. Dancer	20.3.49
Maj.-Gen. W. E. Tyndall, <i>C.B.</i> , <i>C.B.E.</i> , <i>M.C.</i> , M.B., K.H.S.	28.1.51

(2) *R.A.D.C.*

Colonel B. E. Gentleman, K.H.D.S.	13.1.51
-----------------------------------	---------

APPOINTMENTS

Brigadier (Local Maj.-Gen.) A. J. Beveridge, *O.B.E.*, *M.C.*, M.B., is apptd. a Director of Medical Services and is granted the temp. rank of Maj.-Gen., 1st Nov. 1950.

JOURNALS RECEIVED

The following journals have been received and are available in the R.A.M. College Library :

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post-Graduate Medical Journal, Journal of the Roy. Inst. of Public Health & Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Santa, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Santa Militaire, Archives del Hospital Universities, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette.

Notices

THE ROYAL SANITARY INSTITUTE

HEALTH CONGRESS AT SOUTHPORT, 1951

THE Right Hon. Lord Hesketh, D.L., has accepted the office of President of the Health Congress of the Royal Sanitary Institute, which is to be held at Southport from April 23 to 27 next. He will address the delegates at the inaugural meeting in the Floral Hall on the opening day of the Congress.

A large number of delegates is expected from overseas, and the total attendance will exceed 2,000.

The subjects to be discussed at the Congress, which are of special importance to local authorities and other public bodies at the present time, are numerous and cover practically every branch of Public Health. There are eight sections including Preventive Medicine, Engineering, Maternal and Child Health, Veterinary Hygiene, Food, Housing and Town Planning, Industry and Tropical Medicine.

In addition there will be four Conferences with opening addresses by eminent Health Officers for Medical Officers of Health, Engineers and Surveyors, Sanitary Inspectors and Health Visitors.

From the detailed programme it is evident that entertainment, receptions and visits to places and industrial concerns of interest will also form a considerable part of this Congress.

GENERAL INFORMATION

CONGRESS HEADQUARTERS.—The Congress Headquarters in the Floral Hall will be open daily from 9.0 a.m. to 4.0 p.m. for the issue of copies of Congress papers, etc. A lounge and writing accommodation will also be provided there.

CONGRESS TICKETS.—The charge for Congress admission tickets is £2 2s. These will entitle the holders to admission to the Inaugural Meeting, the sections and the conferences, and to receive copies of the papers to be read and of the Journal of the Institute containing the report of the proceedings of the Congress.

Fellows, members and associates of the Institute will be supplied with tickets for the Congress, free of charge, on application to the Secretary of the Institute before the Congress.

Guest tickets (not including copies of papers or of the proceedings) are obtainable for relatives of members, associates and delegates attending the Congress, at a cost of 10s. 6d. each.

Sessional tickets, which entitle the holders to attend one session of a section or conference, are issued at a charge of 10s. 6d. each. The holders of these tickets are not supplied with free copies of the papers.

LONDON SESSIONAL MEETING.—Wednesday, May 23, 1951, at 2.30 p.m. at the Institute. Paper on "The Pimlico District Heating Scheme," by A. E. Margolis, Dip.Ing.

LONDON SESSIONAL MEETING.—Wednesday, June 13, 1951, at 2.30 p.m. at the Institute. Discussion on "Planning for the Care of the Aged and Chronic Sick," to be opened by D. A. Goldfinch, Dip.T.P.(Leeds), F.R.I.B.A., Architect to the Birmingham Regional Hospital Board.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s. payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, R.A.M. College, Millbank, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 91, GREAT
TITCHFIELD STREET, LONDON, W.1. TELEPHONE: MUSEUM 2077.

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		PAGE
ORIGINAL COMMUNICATIONS		The British Army Divisional Medical Organization. By Major-General R. D. CAMERON, R.A.M.C.	
Polio-myelitis and Army Health—A Limited Review. By Lieut.-Colonel C. L. DAY, M.B., D.P.H., R.A.M.C.	211		236
A Sixteen-day Operation in the Jungle. By Captain D. B. S. TAYLOR, R.A.M.C.	219	AT RANDOM	
Some Aspects of National Health Service: General Practice. By Surgeon Captain C. H. BIRT, R.N. Ret., M.R.C.S., L.R.C.P., D.P.H.	222	Three "C"s	243
Future Medical Officers for the Army. By Colonel R. H. ROBINSON, T.D.	225	GENERAL ARTICLE	
Tick-borne Relapsing Fever in Somaliland with Special Reference to the Blood Sedimentation Rate. By A. D. CHARTERS, M.D.Camb., M.R.C.P., D.T.M.&H.	229	The Work of St. Dunstan's. By Major BASIL CURTIS	245
		MATTERS OF INTEREST	247
		BOOK REVIEWS	247
		OBITUARY	249



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

In

DERMATOLOGICAL

Practice

ECZEMAS · VARICOSE ULCERS
SEBORRHOEIC DERMATITIS
PSORIASIS · PRURITUS
OCCUPATIONAL DERMATITIS

E · S · T · P

(MARTINDALE)
Brand

ETHER SOLUBLE TAR PASTE

The original colourless Coal Tar Cream
with *all* the therapeutic advantages of
crude Coal Tar

Literature and Samples on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone: WELbeck 5555 (20 lines) Telegrams: "Instruments, Wesdo, London"

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

POLIOMYELITIS AND ARMY HEALTH—A LIMITED REVIEW¹

BY

Lieutenant-Colonel C. L. DAY, M.B., D.P.H.

Royal Army Medical Corps

INCIDENCE IN THE GENERAL POPULATION

A REMARKABLE feature of anterior poliomyelitis in recent years has been the extent to which older children and adults have been affected. The gradual shift of incidence from the younger to the older groups has been reported from many civilized countries. In the 1947 epidemic in England and Wales for example, about one-third of the cases were under the age of 5, about one-third between 5 and 15 and about one-third over 15.

These figures show a very great change from those pertaining in past years. In 1912 to 1913 of the 1,559 cases reported no less than 1,105 (approximately two-thirds) were in children under 5 years of age. In 1926 out of a total of 276 cases only 37 (about one-seventh) were over 15 years of age [1].

The figures for 1947 show that the disease can no longer be regarded as one essentially attacking infants. This trend has been noted in those countries which have a high standard of sanitation, for example, U.S.A., Sweden and New Zealand [2], whereas in those communities with less advanced sanitation the earlier type of age distribution is found (e.g. Malta in 1943; Mauritius in 1945 [3]).

It should not be assumed, however, that areas with a high standard of sanitation are particularly liable to a heavy incidence of poliomyelitis when the disease becomes epidemic.

A review of notifications from a large number of towns in England and Wales shows "no such association between the attack rates (of poliomyelitis) they suffered in the 1947 epidemic and the infant and general death rate they experienced in the two preceding years, 1945-46. In other words, according

¹Received for publication in November 1950.

to this experience, favourable mortality rates, indicating favourable social conditions in a locality, need not raise fears of an unduly heavy risk when poliomyelitis becomes widespread" [4].

INCIDENCE IN THE ARMY (BY DR. R. STALBOW, PH.D., A.M.D.5)
*Number of Cases of Poliomyelitis and Polio-encephalitis among British Army
 Troops January–October 1947. (As Reported on A.F.W. 3166)*

		U.K.	B.A.O.R.	M.E.L.F.	F.E.L.F.	Other Theatres	Total
January	..	17	—	8	1	—	26
February	..	3	2	1	2	—	8
March	..	19	1	1	1	—	22
April	..	6	—	—	—	1	7
May	..	1	—	3	—	1	5
June	..	8	—	2	—	—	10
July	..	12	1	8	2	—	23
August	..	50	4	2	1	1	58
September	..	26	3	8	2	1	40
October	..	17	3	5	1	—	26
		—	—	—	—	—	—
Total							
(Jan.–Oct.)	..	159	14	38	10	4	225

Since the great majority of the Army population lies within the 15–24 age range, a rough and ready comparison can be made on the basis of the incidence for this age group alone in the civilian population and for the whole Army in the United Kingdom.

INCIDENCE OF POLIOMYELITIS AND POLIO-ENCEPHALITIS IN U.K. IN 1947

E.A.R.s per 1,000 Strength

						Male civilians (15–24 years only)	Military (all ages)
1st Quarter	..	..	..	..	..	0·03	0·44
2nd Quarter	..	..	..	..	..	0·04	0·16
3rd Quarter	..	..	..	..	..	0·80	1·08
First 3 Quarters taken together	..	..	..	..	..	0·29	0·56
Crude figures	..	..	..	..	..	456	142

To some extent, however, even these figures contain an element of bias in that the Army population contains a negligible number of men in the range of 15 to 17 where the incidence is relatively high, while at the same time it does include a considerable number of men above the age of 25 among whom the incidence is low. For both these reasons, figures cited above tend to flatter the Army, and if the age distribution of the two groups tallied more closely the excess of the Army rates over civilian would be accentuated.

Owing to the fact that (a) the age breakdown of the civilian figures is very broad especially in the age range with which we are here concerned, and

(b) there are no readily available figures showing the age distribution of troops in U.K., it is not possible to apply accurately the normal age—standardization technique. It is possible, however, to estimate *approximately* what male civilian rates would be if civilians had a similar distribution to that of the Army. These appear below, and represent the fairest basis of comparison after due allowance for divergent age comparison.

INCIDENCE OF POLIOMYELITIS AND POLIO-ENCEPHALITIS IN U.K. IN 1947

E.A.R.s per 1,000 Strength

						<i>Male civilians</i> <i>(age standardized)</i>	<i>Military</i>
1st Quarter..	..	..	..	..	..	0.02	0.44
2nd Quarter	..	..	..	..	..	0.03	0.16
3rd Quarter	..	..	..	..	..	0.67	1.08
First 3 Quarters taken together ..	..	..	..	..	..	0.24	0.56

An interesting feature of this table, is that although the Army starts at a very much higher level, the proportionate increase from the pre-epidemic to the epidemic period was much less in the Army than among civilians. The E.A.R. based on the first six months of the year for civilians was 0.03 which rose to 0.67 during the epidemic quarter. Corresponding Army figures were 0.38 and 1.08. Thus the civilian rate increased 20 fold while the Army rate less than 4 fold. It is impossible to say whether this may not be partially due to defective notification by civilian authorities in the early part of the year, before the epidemic turned the spotlight on "Polio."

The high initial rate in the Army may well be attributable to living conditions which are inevitably liable to be propitious to the spread of infections, and the comparatively small increase during the epidemic period may reasonably be regarded the result of effective precautionary measures.

Summary.—With certain reservations arising out of the difficulty of obtaining comparable figures for civilian and soldiers for the same age-groups the outstanding conclusions of this note are :

- (a) Before the epidemic of the summer of 1947, Army incidence of poliomyelitis and encephalitis in U.K. was much higher than corresponding civilian figures ;
- (b) During the epidemic, Army rates were still higher than civilian but the disparity was very much smaller ;
- (c) the comparatively small increase in Army rates during the epidemic may be attributed to effective precautionary measures.

MULTIPLE CASES

The frank clinical case of poliomyelitis is an occasional occurrence in a "carrier" epidemic. It is estimated that approximately 100 infections occur to one clinically recognized case. The occurrence of multiple case outbreaks in a family is uncommon but not so rare as was generally considered to be the case in the 1947 epidemic.

During 1949 two or more cases in a household were frequently reported.

Pearson *et al.* [5] found that carriers of the virus were concentrated about those households in which there was a paralysed patient.

An example of this "multiple infection" occurred in an Army family in Egypt in the summer of 1950. A child aged $7\frac{1}{2}$ months died of poliomyelitis complicated by gastro-enteritis. The onset of illness was on June 30. The following day the child's father was taken ill and later died of polio-encephalitis.

THE EFFECTS OF PHYSICAL ACTIVITY

The avoidance of excessive physical strain in children, such as violent exercise, during an epidemic or in the case of known exposure to infection is a recognized control measure [6].

Summarizing an investigation into this problem, Dr. Ritchie Russell concludes that "complete physical rest in bed from the onset of the pre-paralytic stage greatly reduces the danger of severe paralysis. Severe physical activity at this stage is almost suicidal while the continuance of even average physical activity is dangerous. During the epidemic physical activity should be avoided entirely in minor illnesses . . ." [7].

The same author surveying the effect of activity in a series of cases in the 1947 epidemic gives as an example the history of a paratrooper [8].

Case 9.—"A paratrooper aged 19. Day 1: From 11 p.m. the previous evening to 2 a.m. there was severe lumbar pain which kept him awake; he kept moving restlessly to change his position. On getting up in the morning he felt shivery and had little appetite. Heavy training manœuvres as usual during the day. He slept well that night—no return of lumbar pain was noticed. Day 2: He does not remember pain, still had some difficulty in getting down to fasten his boots in the morning. He still had little appetite and felt shivery. During the morning he took part in heavy infantry manœuvres and carried machine guns up a hill. By 2.30 p.m. his legs began to feel weak and he noticed lumbar pain. By evening both lower limbs and right arm were completely paralysed. Day 3: The paralysis spread to his trunk muscles; there was some vomiting. Day 4: Respiration failed—respirator required. Six weeks later he was still in respirator and there was little recovery in his muscles."

Of interest is a review of cases which occurred in Southern Command (England) in the summer of 1947. The following is an extract of the report of the D.D.H.

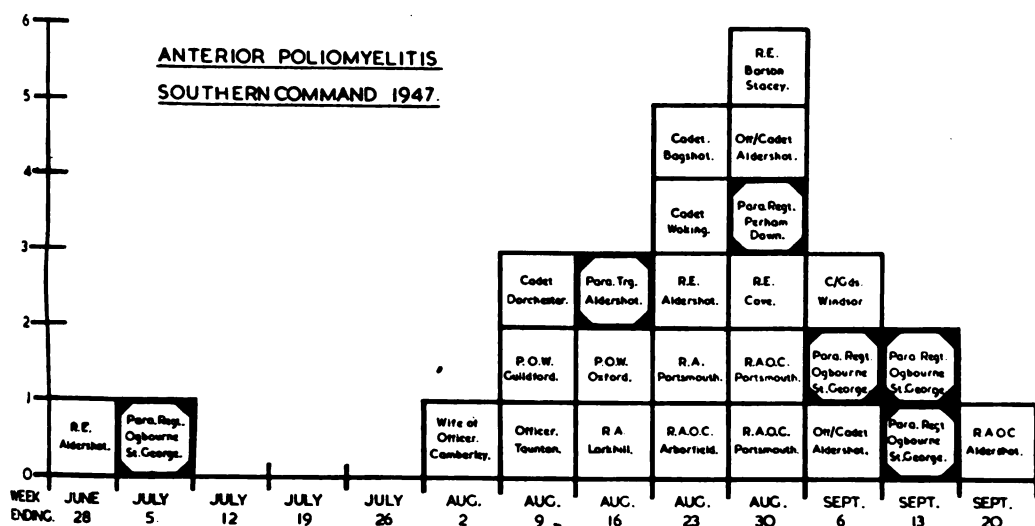
Review of Cases of Anterior Poliomyelitis, Southern Command up to September 20, 1947.—The first of the present series of cases occurred in the week ending June 28, when a Corporal of the R.E. Aldershot was admitted and died on June 29. The next case occurred at Ogbourne St. George, a camp occupied by the 4th Para. Regt. This man is still in hospital. This fact has to be emphasized, as the incidence of the disease in the Paratroopers was out of all proportion to that experienced in other troops in this Command. Further, only in these troops did any cases occur in which any association could be discovered. At a later period during the weeks ending September 6 and 13, 3 further cases occurred in the same hut within a few days of each other.

Similar events have been reported in civil experience, but with these exceptions, it can never be said that the infectivity of the disease is high.

Six paratroopers out of a total of 26 cases, of which only 17 occurred in other ranks, up to September 24 is a high proportion of the total, especially taking into account that

the gross total includes officers—wife of an officer—two Ps.o.W.—two boy cadets up for annual camp and cases from troops outside the Command. 10 of the cases came from Aldershot area, 2 came from R.A.O.C., Portsmouth, but no contact could be proved. The other cases were scattered throughout the Command. It is difficult to explain the high incidence among Paratroopers, but it may be said that no body of troops is worked harder than these. They are carefully picked men, whose physique may be classed as extraordinary. Their feeding is adequate and, when on intensive training, this is supplemented by the issue of haversack and strenuous duty rations. There has been prolonged preparation for a special "exercise."

A table showing schematically the incidence of the disease is attached.



INCUBATION PERIOD

The incubation period is usually considered to be between seven and fourteen days. The period may, however, be as long as thirty-five days and as short as three days [9].

Murray reports cases with an incubation period of only two days [10].

An interesting series of cases occurred in Ceylon in the summer of 1948, in some of which it would appear that the incubation period was of very short duration.

Cases had been reported amongst the civilian population before the onset of the first Service case. This was a soldier from a wireless station in Colombo. The second case was the wife of a serjeant who worked in a wireless unit "A" situated just outside Colombo. She had been to her husband's unit dance about three weeks before being taken ill.

Three cases amongst the R.A.F. were also reported at the time. They were in R.A.F. personnel intimately connected with wireless duties. It was thought that there might not be any further cases when on June 10 a man was admitted from "X" barracks, Colombo, with severe headache, and a temperature of 101° F. Between June 10 and 14, 13 other cases were admitted, all from "X"

barracks. These cases were all similar in their history, characterized by a severe headache with fever, moderate or mild. Some had vomiting and back-ache. All were symptom free in three or four days. None of these cases developed transient or lasting paralysis. This absence of paralysis in all these cases occurring in succession at first apparently unconnected with the first 5 cases gave rise to some doubt as to the diagnosis. Investigation showed, however, that 4 men from the wireless unit "A" had been billeted at "X" barracks, while awaiting embarkation to the U.K. before a ban on the men of this unit had been imposed.

The first of the new series of cases came off a troopship three days before the onset of headache and two others from the same ship developed similar symptoms within the next five days. The ship from which these men had disembarked was outward bound from the United Kingdom and the question arises as to the source of infection. Were the men infected on the ship or after arrival at "X" Barracks? No case of poliomyelitis was reported from the ship before or after calling at Ceylon and it seems probable that the men were infected in the Barracks (in which cases had recently occurred) after disembarkation.

It may be argued that the diagnosis in these cases is doubtful. Pathological investigation revealed "suggestive" C.S.F. findings—viz. an increase in cell count, ranging between 60 to 700 per c.mm. In addition some had raised total protein and in one case the C.S.F. was under pressure (200 to 220 mm.). In the absence of clear evidence of an epidemic of a new disease in the nature of a virus encephalitis, however, and the knowledge that cases of anterior poliomyelitis were already occurring in the island, there seems little doubt as to the correctness of the diagnosis.

In England and Wales (1950) approximately 1 "non-paralytic" case of poliomyelitis is diagnosed for every 3 "paralytic" cases. A very great number of minor illnesses due to infection with the poliomyelitis virus must escape medical attention and the disease is therefore much more prevalent than the figures of notified cases would suggest.

A series of mild cases such as those reported from Ceylon would quite probably occur in any poliomyelitis epidemic.

QUARANTINE

In Great Britain the Ministry of Health recommend that child contacts of a case of poliomyelitis should be excluded from school for a period of twenty-one days. Apart from this measure, however, quarantine measures are not as a rule applied.

In view of the greater liability of children to contract the disease there can be little doubt that known child contacts should be isolated. It has already been noted that carriers of the virus are concentrated in those households in which a case of paralytic poliomyelitis has occurred and it would appear therefore that segregation has a part to play in the prevention of the spread of the disease. It is wrong to adopt a *laissez-faire* attitude based on the incorrect

assumption that in an epidemic the virus is necessarily widespread throughout the population.

"There is no evidence whatever that during an epidemic the virus of poliomyelitis is ubiquitous throughout the whole population. The most that can be said on the basis of virological investigation is that there is a widespread distribution of poliomyelitis virus in certain households attacked by the disease" (Bradley [11]).

In considering whether quarantine should be applied each case will have to be judged on its own merits, remembering that the life of the community should be interfered with as little as possible unless by quarantine it can be reasonably expected that the spread of the disease will be limited. In the event of a single case or a small outbreak in an isolated detachment of troops it is considered that movements from or to a "non-infected" area or unit should be prohibited for a period of fourteen days.

An example of the type of incident in which quarantine was, quite correctly, applied occurred in an outbreak in Singapore District in 1949. The following is an extract from the report of the D.A.D.A.H.

"The first 3 cases occurred in a Signal Regiment within five days of one another. They included one B.O.R. on a course who had arrived from Kuala Lumpur on March 1, 1949, and whose date of onset was March 15, 1949. (Note : The dates of onset of the other two were March 11 and March 12, 1949.) There was no apparent close connexion between the three cases ; they slept in different huts, and were not "close pals" in any way. In view of the fact that this outbreak was both "explosive" and localized to one unit, no personnel from this unit were allowed to embark for the U.K. on release, etc., until the expiry of fourteen clear days from the date of last admission to hospital."

No reliable evidence exists to show that poliomyelitis is a food-borne infection. Nevertheless the virus is frequently found in the stools of both patients and contacts, and the possibility still exists of a dual mechanism in transmission [12].

Food handlers who are contacts should therefore be warned to be particularly careful of personal hygiene. If any contact food handler becomes ill he should be removed from such duties for at least two weeks [13].

PROPAGANDA AND INFORMATION

It is most important for the Medical Authorities to keep the public supplied with information concerning the course of the epidemic and let them know what steps are being taken to combat the disease. The public should also be told what they themselves should or should not do. Few diseases are more likely to cause alarm and rumours. It is the duty of the medical branch of the Headquarters and of the medical officers on the spot to produce prompt and accurate information to allay doubt and inspire public confidence.

In 1947 an officer was removed from a troopship at Singapore and two days later died of poliomyelitis. Shortly afterwards a London evening paper published a paragraph headed "Epidemic fear in Troopship—Officer dies," and went on

to mention a "mysterious brain disease," which was feared to threaten the two thousand British Troops in the liner. At the same time a Singapore paper under the heading "Mystery Disease Isolated Singapore Army Camp," wrote of the discovery of what "may be a form of sleeping sickness."

The Army Medical authorities in Singapore immediately issued an official statement to the Press giving an account of what had in fact occurred and this did much to check rumours and allay alarm.

Some newspaper headings which were published in a later Singapore epidemic are reproduced below.

Polio Warning In Federation

ADVICE ON POLIO

THE following advice on precautionary measures to prevent the spread of infantile paralysis has been officially issued:

MAN-IN-THE-STREET

Should The Schools Be Closed?

S'PORE RADIO S.O.S. FOR POLIO NURSES

Public Warned On Polio 'Cures'

REFERENCES

- [1] Report of Ministry of Health for Year Ending 31.3.48.
- [2] CAUGHEY, J. E. (1949) *B.M.J.*, August 20.
- [3] Report of Ministry of Health for Year Ending 31.3.48.
- [4] BRADFORD HILL and MARTIN (1949) *B.M.J.*, August 13.
- [5] PEARSON, H. E., *et al.* (1945) *Amer. Journal of Hygiene*, **41**, 188.
- [6] Control of Communicable Diseases in Man. Amer. Public Health Assoc. 7th Edition, 1950.
- [7] RUSSELL, W. RITCHIE (1949) *B.M.J.*, March 19.
- [8] — (1947) *B.M.J.*, December 27.
- [9] Control of Communicable Diseases in Man. Amer. Public Health Assoc. 7th Edition, 1950.
- [10] MURRAY, L. H. (1947) *B.M.J.*, December 27.
- [11] BRADLEY, W. H. The Medical Annual, 1950.
- [12] TANNER, W. A. (1948) *Amer. Journal Medical Soc.*, 216.
- [13] Measures Against Poliomyelitis. *B.M.J.*, August 23, 1947.

A SIXTEEN-DAY OPERATION IN THE JUNGLE

BY

Captain D. B. S. TAYLOR

Royal Army Medical Corps

APPRECIATION OF THE TASK AND THE PLAN

WHILE serving with the 2/Battalion Malay Regt. in Kelantan news was received that a Dakota aircraft had crashed close to Kampong Jendera, about one day's journey from the H.Q. at Gua Musang. The task was to get there quickly in the hope that there would be survivors.

Within about an hour a Police jungle squad, myself and batman with a Malay signaller set off with two days' rations in trucks which took us 20 miles along the rough railway track to Bertam.

A Company from our Battalion at Bertam had made ready two boats. The river was fast flowing and in parts there were rapids. The boats were powered by an outboard motor and had a shallow draught.

Next day after camping in a deserted bamboo hut we arrived at Kampong Jendera and there learnt by wireless that the crash was at least a further 12 miles up river.

At this point "D" Company Commander arrived with two platoons, also his second in command with a further platoon which was returning to Coy. base after a two weeks' operation.

The officer Commanding the Company had had experience in the Burma jungle while the second in command had experience in the Malayan jungle and they assured me that our task was not easy since the jungle was very thick, there were no known tracks while the maps were inaccurate and had not the detail to be of much value. To reach the crash would take four days at least.

Overhead aircraft could see the crash and gave the map reference, also the information that if we followed the river until we came to a fork, then we would find the crash above a waterfall on the left fork.

The Company Commander decided to cross the river and follow it till we came to the fork. A start was to be made next morning. Meanwhile the jungle squad returned to base.

MEDICAL SUPPLIES

Medical haversacks were carried by the three medical orderlies containing, shell dressings, omnopon, sulphathiazole, penicillin powder, sulphaguanadine, mepacrine, paludrine, aspirin, flavine, bandages, gauze, adhesive tape, gentian violet, a small set of instruments and other small items. These drugs were all

packed in tins with adhesive tape to keep them waterproof. My own haversack contained a small set of surgical instruments, penicillin, chloromycetin, local anæsthetic, syringe, omnopon syrettes and shell dressings all packed in a waterproof ration bag. Further supplies could be obtained by air-drop.

RATIONS

Rations were received every three days by air-drop and included one day's fresh supplies. The Malays each have a twenty-four hours ration tin containing rice, curried fish, curried meat, nuts and chocolate. They do not tire of a rice diet whereas Europeans prefer British rations.

COMMUNICATIONS AND MAINTENANCE OF THE PARTY

Communications with H.Q., overhead aircraft and between platoons was by wireless. During the midday halt smoke bombs were set off and communication made with overhead aircraft to fix our position. On the day we reached the crash smoke bombs were used several times in order to guide the party the last few hundred yards. Every evening our progress was reported to H.Q. and demands for air-drop supplies made every third day.

During the evening halts, arms had to be oiled, cleaned and inspected, also jungle boots and uniforms replaced from air drop supplies, since the former frequently split and the latter became torn. I remember one M.O.R. who after several days had no shirt at all, it had been torn away little by little.

Kit was carried in large packs; three days' rations, mess tins, ground sheet and toilet equipment also. I noticed several Malays had 1 lb. jars of Brylcreem.

DIFFICULTIES ENCOUNTERED

The great difficulty proved to be the fact that there were no tracks. We marched on the left side of the river on ground that was sloping and wet. The leading scout aided by Sakais* used Parangs to cut a path through the undergrowth. During halts in the morning and early afternoon, cutting parties went ahead. We had to cross many small valleys and it was an energetic job pulling oneself up the steep slopes. A thicket of bamboos on several occasions caused us to halt for half an hour while a gap was made. At one point I saw bamboos a foot in diameter. Several times we came upon streams which we followed to make more rapid progress; feet were wet during the day as a consequence.

Air-drops caused some delay because there were no open spaces and we often had to recover containers from the river or from tops of trees.

We reached a point when it was no longer to our advantage to follow the general direction of the river, we obtained a compass bearing from the overhead aircraft and the N.C.O. holding the compass directed the cutting party in

*The Sakai are one of the aboriginal peoples of the jungle; small of stature, but of beautiful and magnificent physique and intelligent; their chief weapon the blow-pipe. [ED.].

front. Progress became more difficult and during one eight-hour march we covered only $\frac{1}{2}$ mile.

Each day we started at 0730, halted at 1030 for half an hour and then at 1330 for an hour. At 1600 hours we halted, made shelters and made a meal since darkness fell at 1900 hours.

A number of Sakais, jungle people, accompanied us, and acted as carriers. They are small in stature and do not look to be a strong race, but they are able to carry heavy loads and they appear to eat and drink very little. Each night they made our shelters and later, on our return, made bamboo rafts for us to go down the river.

On one day we struck a small bandit camp ; two Chinese bandits were seen, one injured by the second in command while two Sakai bandits were killed. One patched pack was found containing a bottle of salt, a bag of Indian corn, several rounds of .303, a fork, a spoon and some empty tins.

On the seventh day after leaving Kampong Jendera we found the crash, there were no survivors. The bodies were buried with full military honours and we returned to base.

EFFECT OF THE TASK ON THE MEN FROM A PHYSICAL AND PSYCHOLOGICAL ANGLE

On returning to base I had been out over two weeks, 1 platoon, however, had had four weeks in the jungle. Physically there was no change in the Malays, some were very tired and had lost weight, a few had sore feet but a few days' rest found them fit again.

Mentally the Malays are cheerful and my batman made no comments to me about the patrol, in fact he just accepted it as being just another operation, however this can be disadvantageous in that there is no warning in the case of a man who is near breaking point. He collapses and is moved on with difficulty.

LESSONS TO BE LEARNT

There was no new lesson to be learnt but there were many lessons re-learnt. I learned by experience the value of Salt Tablets in drinking water. Also the value of an adequate and varied diet and plenty of hot sweet tea.

SOME ASPECTS OF NATIONAL HEALTH SERVICE: GENERAL PRACTICE

BY

Surgeon Captain C. H. BIRT, R.N.Ret., M.R.C.S., L.R.C.P., D.P.H.

IN 1949, the after-effects of otitic ear trauma sustained in Burma during the last conflict manifested themselves to the extent that I became unfit for Foreign Service, and was accordingly invalided. Being only in my middle forties with a family to educate I had to come to some decision as to how to implement my pension.

It so happened that at this time the Public Health appointments were not being advertised, and I decided to go into General Practice.

Provided with possible openings by the principal Agencies, I travelled many miles across Southern England from Monmouth to Kent, and eventually went into partnership after a short assistantship in a practice that fulfilled most of my criteria. It was urban/rural, on the outskirts of a city with large hospitals, and offered a suitable house. Furthermore, it was obvious there would be time for family life, games and hobbies, all of which I was not prepared to sacrifice.

The practice, which is predominantly under the National Health Act with a small and diminishing private element, was well over the limit for the one overworked doctor who was running it, but offers very reasonable working conditions when run by two in partnership.

I now propose to compare and contrast under various headings my old life and the new.

(1) *Financial*.—I found that my first year's income from general practice was approximately the same as my last year in the Service, although my Service Pay was within two shillings a day of the top rate for a Surgeon Commander (equivalent rank Lieut.-Colonel) plus specialist pay and marriage allowance. This was, of course, prior to the recently announced increases in Service pay. Thus it was my experience to start G.P. where I left off in the Service. Inasmuch as the Income Tax Collector is not concerned when you are in the Service with your house, rates, car, gardener, etc., etc., the nett for the same gross is higher in General Practice than in the Service. It might be thought that this gain might be more than offset by heavy practice expenses. but reference to my accountant's figures for legitimate practice expenses of about five hundred pounds show that 90 per cent of these had to be met in my Service days, and without benefit of Income Tax relief on them.

(2) *Hours on the Bench*.—I believe the motion study people use this ex-

pression for actual time spent working, i.e. deducting journey time to work, meal times, time merely on call, etc.

On this basis I find my last Service job and my present practice compare fairly closely.

LAST SERVICE JOB.—ADMINISTRATIVE

Mon.—Fri. 9–1, 2–5 = $7 \times 5 = 35$

Alternate Sat. 10–12 = $\frac{1}{2} \times 2 = 1$

—
Total per week 36 hours

Alternate week-ends, thirty days' leave per annum.

PRACTICE

Monday. Morning Surgery and Visits. 9–1, 2–4 = 6

Tuesday. Visits and Evening Surgery. 10–1, 2–3, 6–8 = 6

Wednesday. Ditto = 6

Thursday. Morning Surgery and Visits, Half-day 9–1 = 4

Friday. As Monday = 6

Saturday on. 9–1, 2–4, 6–8 } = $\frac{1}{2}$ of 10 = 5

Saturday off. 10–12 }

Sunday on. 10–12 } = $\frac{1}{2}$ of 2 = 1

Sunday off. Nil }

—
Total per week 34 hours

Alternate week-ends, thirty days holiday a year.

(3) *The National Health Service*.—I had very limited experience of General Practice prior to July 1948, but I find the National Service easy to work with a little give and take on both sides. The paper work is certainly no more time consuming, and it is certainly easier to write a prescription than to make up a bottle of medicine. Also there is now no ledger to make up every evening.

Undoubtedly there are a number of what turn out to be bogus calls, but many of them only need understanding. In the case of the worried mother and the fretful child I regard myself as paid to reassure the mother, not to reprimand her for being worried. Of course this can be carried too far, but a wise and experienced doctor can train his flock to quite a degree.

(4) *Ancillary Services*.—One of the outstanding differences between Service and National medicine is the difficulty in the latter of obtaining some reports. An injury has to be referred to a Casualty House Surgeon, and an X-ray depends on his whimsy—a chest has to be referred to the Tuberculosis Officer, and in my area examination and re-examination seem to go on until patience is exhausted on one side or the other. A gastric case has to be referred to a Consultant, who, after the usual three to four weeks delay for an appointment, takes it as a complete case.

The “laboratory” show up best, as they will do blood counts etc. in exchange for a doctor's letter. Sporadic visits by a newly formed mass miniature X-ray unit will assist with chests.

Many cases could be handled by the G.P. without trespassing on the time of the Consultant if he had the X-ray reports.

The Bed Service is a great boon, and greatly appreciated by anyone who has ever spent an hour ringing up one House Surgeon after another.

(5) *Health Centres*.—So many ordinary people greeted me as a newcomer by saying they had come to this house when they needed a doctor for 20, 40, 60 years as the case might be, that I came to feel that the old house and familiar surrounding must mean more to them than any planner's dream of a Health Centre, however hygienic and chromium plated.

(6) *Sick Rates*.—Taking the average of surgery attendances and visiting lists for the practice over the past twelve months, it would seem that approximately 1·7 per cent of the practice are seen every day for six days of the week. This means that everyone on the list is seen approximately five times per annum.

The ratio of attendances to visits is about three to one, although for our own convenience we do a number of visits to ambulant patients.

In taking surgery I am slower than my more experienced (in G.P.) partner, and I average one patient every four minutes.

Not many of these have textbook illnesses, but they wouldn't come to the surgery unless they thought you could help them on their way, and there are many occasions when all your reading, all your training and all the acumen and experience you can command are called into play.

FUTURE MEDICAL OFFICERS FOR THE ARMY

BY

Colonel R. H. ROBINSON, T.D.

A.D.M.S., Home Counties District

(Continued from page 191)

PART III.—PROPAGANDA—INDUCEMENTS—MISCELLANEOUS

(a) *Propaganda Officer*.—A senior officer of the Corps should have the duty of visiting medical schools to talk to students about the Army, to arrange lectures and demonstrations and generally to bring the R.A.M.C. constantly to the notice of the students; he might also visit some of the Public Schools and Secondary Schools to talk about the Army Medical Service in peace and war—he might do a lot of good work amongst boys who cannot make up their minds “what to do when grown up.” The same officer might visit cadet camps and might be a Deputy Inspector of Training with special duties in connexion with medical units of the University Training Corps; another similar officer might perform duties amongst house surgeons and others in non-teaching hospitals, medical societies, medical units of the T.A.; Press propaganda should be included in the duties.

The Propaganda Officer would not be required to be a permanent appointment; as other suggestions for improving the terms and conditions of service are affected the Service will advertise and recommend itself, and the need for extensive propaganda will cease. It is thought that the officer appointed should be a serving officer and not a retired re-employed one, or one so senior in age that the students and others may have the impression that he is living in the glorious past, quite out of touch with the present; the psychological effect of a fully active officer will be greater. Successful propaganda work will require the full-time attention of the officer at first, so it is felt that it should not be made the responsibility of the local D.D.M.S. or A.D.M.S. although these could and should help.

A pamphlet should be prepared for distribution to medical students and housemen setting out all aspects of life in the Army, all the things a medical officer can do, can accomplish; some history of the R.A.M.C. and so on.

(b) *Undergraduate Scholarships at Medical Schools* should be considered. In addition to any existing scholarships which entail a certain amount of service in the R.A.M.C. after medical registration, there might be more scholarships with Service conditions attached to them. Some scholarships might be open only to orphans of ex-members of the Fighting Forces; some open to

sons of members of the R.A.M.C., others to orphans of medical practitioners and so on.

Some scholarships might be tied to certain boys schools ; arrangements should be made for them to be distributed equally amongst all the medical schools so that there will be a constant infusion of new blood from all the medical schools and no monopoly ; an ideal might be for one new scholar to enter each medical school of the United Kingdom every year so that each school would be represented by an entrant into the R.A.M.C. annually.

The scholarships would vary in value from part fees to full fees at the medical schools, and in some cases possibly " keep " would be included.

The holders of the scholarships would be under an obligation, when qualified, to serve on Short Service Regular Commissions for periods of years varying according to the value of the scholarships, possibly with a reserve liability. It may be that part or all of the value of the scholarship would count against the gratuity or retired pay which the officer would have earned if he had entered the Service having qualified at his own expense ; these scholarships would be, in effect, gratuities or retired pay (in part) in advance.

The money for these scholarships could come from a variety of sources ; being gratuities in advance of service much of the money could come from the place where the gratuities come from, namely the Treasury, for they will be offset by the relief of payment of gratuities to an equivalent amount. Some of the Funds could come from existing Corps and Army Benevolent Funds, Welfare Funds—much of which must be lying idle or is being distributed on less worthy causes—a medical scholarship or two might have been a better fate for the R.A.M.C. War Memorial Fund than pouring away money on helping men to pay debts, buying furniture under Hire Purchase Schemes and so on ; this would seem to present an occasion on which to review the R.A.M.C. Fund, the Army Benevolent Fund, R.A.M.C. War Memorial Fund, etc. Further funds for scholarships might come from Wills and Bequests, Memorials and other such sources.

Expansion of the existing Kitchener Scholarship Scheme might be considered.

Care would have to be taken that those appointed to Scholarships are, by education, personality, and background, suitable to be doctors and officers ; further, it would have to be ensured that they are not distinguished, when students or officers, from any others entering by the normal channels (except possibly they might have to serve longer, their length of service being regulated to earn a hypothetical gratuity equivalent to the value of the scholarship).

A number of men will take up the scholarships and will do the minimum amount of obligatory service in the R.A.M.C., merely to get the qualifications, and will then leave the Army—that will have to be accepted, but it is hoped that a reasonable number will get to like the Army and will be acceptable for, and will apply for, permanent commissions ; this will depend on how far the Army has been made attractive.

It will be important from the point of general pay policy to ensure that

there are not different rates of pay for scholarship and non-scholarship medical officers—recoveries of money, if any, from the students should be from the gratuities or retired pay as far as possible.

Two types of scholarships are envisaged—one, which might be termed “assisted studentships” which would be met out of Public Funds in the first place but recoverable from the gratuity and/or pay of the officer when he performs the consequent obligatory military service; the second would be just the ordinary type of scholarship, derived from bequests, etc.

(c) *Post-graduate Scholarship* might be instituted for National Service and volunteer Short Service Commissioned Officers whereby, in return for free post-graduate courses at Medical Schools for Higher and Specialists qualifications they will serve an additional number of years on Short Service Regular Commissions.

(d) *Undergraduate Military Training* should be obligatory for scholarship holders; they would serve in the University Training Corps or in the Territorial Army, and thereby gain acquaintance with military routine and methods gradually.

At the present, service in the University Training Corps is not popular; students feel that they have to do their National Service after qualification and any service they do in the U.T.C. counts for very little; it is thought that consideration might be given to the granting of promotions to those who serve in the U.T.C., and later serve in the R.A.M.C. as National Service men or in the R.A.M.C. (T.A.). A suggestion is that, as before the war, three and six months antedate should be given to those who obtain Certificates A and B respectively whilst in the U.T.C., and that the antedate might refer to promotion to Captain; also there might be an additional one month antedate for every year of efficient service in the U.T.C. These antedates could carry quite big financial benefits to a man who was a keen member of the U.T.C., they would be inducements to join the U.T.C. and the T.A.; they might, indirectly, help men to make up their minds to take regular commissions. Possibly the antedate should be credited to the officer when he changes from Short Service to permanent commission status.

(e) *Specialists*.—Whilst every opportunity should be given to Medical Officers to become specialists (in medical subjects) these specialists should not be given undue advantages over those whose bent is in the direction of general practice and administration—after all, these latter are the backbone of the Regular Service. These latter should have the opportunity to become specialists too, if the medical specialists are to get financial advantages, but they should become specialists in medical administration. Those who attend courses of instruction in general medicine and surgery and who attend a staff course at a Staff College, obtain an Interpreters Certificate, and who are trained and experienced in staff, administration and command duties, should be classified as specialists in Administration and Staff Duties (Medical), and should receive specialist pay accordingly.

(f) *Training Manuals, etc.*—There is a great need for a set of books con-

taining "all the medical officer needs to know"; the new young medical officer does require a book which will tell him what to do on all sorts of occasions, how to deal with situations, and so on.

It is frequently claimed that there is nothing which is not laid down in one of the official manuals or regulations—if one knows in which one to look. But there is a need for books of "Aids" to medical officers, covering the many aspects of Army life and procedure. Many an officer would find it helpful to be able to consult an "Aid" which will help him with one or other of such things as

- Behaviour and customs in Messes.
- How to dress for various occasions.
- How to run an Orderly Room.
- How to deal with a soldier placed on a Charge.
- How to conduct a Court of Inquiry or take a Summary of Evidence.
- How to inspect a Unit Cook house as (i) the C.O., (ii) the M.O.
- How to pay the staff and patients in a medical unit.
- How to check a store and ledgers.
- How to carry out a unit inspection of vehicles, faults to look for.
- How to conduct a Medical Board.
- How to compile and issue Orders and Instructions, Administrative, Operational, Routine, etc.
- How to write official letters.
- How to run an exercise, objects of exercises, etc.
- Descriptions of medical units (Static and Field, including Establishments, equipment, role, handling).
- Annual Estimates, how to compile.
- Etc.

The "Aids" should be in simple plain language, as free as possible from jargon; where the information is readily available in existing books then the "Aids" should enumerate and collate the references so that the officer can easily find what he wants.

The "Aids" should be in loose-leaf form so that officers can begin to build up their books as soon as they start training at the Depot, where issues of leaves would be made in conjunction with their training sessions. Additions, deletions, amendments, etc., throughout the officer's career would be by extraction or insertion of leaves, which is a much tidier and more satisfactory way than the present system of erasures, pasting in of amendment slips with consequent deformity of books. Many of the loose-leaves would be common to officers of all Arms and many would be particular to the R.A.M.C.

Such publications would help the young inexperienced officer considerably, and would do much to overcome the floundering and groping in the dark which is so discouraging, and which so often causes the National Service officer to develop a dislike for the Army.

(to be continued)

TICK-BORNE RELAPSING FEVER IN SOMALILAND WITH SPECIAL REFERENCE TO THE BLOOD SEDIMENTATION RATE¹

BY

A. D. CHARTERS, M.D.Camb., M.R.C.P., D.T.M.&H.²

Late Major, Medical Specialist

THIS paper has been compiled from investigations carried out in Somaliland during the years 1941 to 1945.

Tick-borne relapsing fever in Somaliland differs from the louse-borne infection of the Abyssinian highlands in being far less severe and in having relapses of shorter duration. There was not a single fatality out of the 42 cases treated ; this series included 4 Europeans, 31 Somalis and 7 East Africans. Out of 140 pyrexial attacks, the average duration was 3·1 days, the course of an attack varying in individual cases from 1 to 17 days. The interval between relapses also varied greatly, from 2 to 63 days, the average being 8·6 days. The average number of attacks per patient was four, but one patient, a European, had as many as 13 bouts of pyrexia, and was in hospital for a total of 137 days (over four months) before he was fit for discharge.

The disease was definitely more severe in the European cases than in the Somalis and East Africans. One European developed the complication of iritis while another suffered from cerebral symptoms with intractable headache and vomiting, neck rigidity and positive Kernig's sign. The latter patient, whose symptoms were relieved by lumbar puncture, showed a raised cerebrospinal pressure with an excess of cells and protein in his fluid.

A total of eight lumbar punctures was performed in this series, 5 of the patients suffering from neck rigidity and showing Kernig's sign. The C.S.F. protein was increased in 5 of the cases (4 of whom were suffering from neck rigidity) and there was a cobweb clot on standing in one case. Spirochætes were not seen in films of the C.S.F., but might have been demonstrated by animal inoculation.

Complications included the following : iritis in 3 cases ; basal pneumonia in 2 ; dysentery of the bacillary type (not responding to succinyl sulphathiazole) in 2 ; diarrhœa in 3 others ; acute nephritis in one ; hepatitis with jaundice

¹This article has been reprinted from *Trans. R. Soc. Trop. Med. Hyg.* by kind permission of the Editor.

²I am grateful to Dr. R. B. Heisch, of the Division of Insect-borne Diseases, Medical Research Laboratory, Nairobi, for his helpful criticisms, and to Brig. J. M. Macfie, C.B.E., M.C., D.D.M.S., East Africa Command, for permission to publish this article.

in 1 ; herpes of the right auricle in 1 ; left cervical neuritis in 1 ; and unilateral otitis media in 1.

An interesting case of Jacksonian epilepsy was seen. The patient was a Somali. It is unfortunate that, as no spirochaetes were recovered from his blood, the diagnosis could not be proved, but his relapsing type of pyrexia suggested that he was suffering from relapsing fever. The cerebrospinal fluid showed no abnormality and was not increased in pressure. Each fit commenced in the right hand and then spread rapidly up the arm and thence simultaneously to the right side of his face and lower extremity. The left side of the body was unaffected. There was no unconsciousness. The attacks rapidly succeeded one another and persisted with diminishing severity for fourteen days. Between the spasms there was a flaccid upper motor neurone paralysis. After two weeks the fits, which had diminished in number under phenobarbitone, ceased altogether. The power came back in his right limbs, and within twenty-four days of his admission the abdominal reflexes had returned and the plantar responses had become flexor. He was discharged walking with a slight limp after eight weeks in hospital.

The Wasserman reaction is said to be positive in about 20 per cent of cases (Manson-Bahr, 1945 ; Heilman and Herrell, 1943), but out of 8 cases examined in my series the Kahn test was negative in all. The majority of these patients were natives of British Somaliland who, being strict Mohammedans, rarely suffered from syphilis. These findings are in agreement with those of Garnham *et al.* (1947) who, during their investigations on a louse-borne epidemic in Kenya, found the Kahn reaction positive in only 3 out of 36 specimens of blood examined at different stages of the disease ; they state that the positives were probably due to syphilis or yaws.

There is usually said to be a leucocytosis in this disease. Out of 26 leucocyte counts performed during the attack, the average total count was 7,795 (varying between 3,000 and 14,000), and the average neutrophil percentage 60 (varying between 45 per cent and 90 per cent). The neutrophil count varied from 1,740 to 10,920, the average being 4,389. Only 3 out of 18 cases had counts over 6,000 per c.mm. In this series, therefore, a neutrophilia was the exception rather than the rule.

There was commonly a secondary anaemia, the average red cell count being 4,140,000 per c.mm., the haemoglobin 71 per cent (Sahli) and the colour index 0.84.

The blood sedimentation rate is so commonly employed nowadays as a sign of recovery from active disease, especially in rheumatic fever and tuberculosis, that I was tempted to investigate whether it might be of value as an index of complete recovery or of the susceptibility to future relapses. The technique employed in Somaliland was that of Westergren. It was not possible to correct for anaemia, neither is such a correction entirely reliable, since the correction is based upon dilution of the blood which is not strictly comparable to clinical anaemia (Davis, 1946), and since no allowance is made for the natural power of anæmic blood to compensate for its tendency to rapid sedimentation (McFarlane and O'Brien, 1946). Moreover, the Westergren is less susceptible than the Wintrobe method to the effects of anaemia (Davis, 1946).

One hundred and fifty-nine B.S.R. examinations were performed, including

113 tests on Somalis, 27 on East Africans and 19 on Europeans. The B.S.R. taken during attacks varied greatly (from 4 to 110 mm.), the average of 19 examinations being 61·7 mm. in 1 hour (49·2 in the Somalis, 78 in the East Africans, and 58 in the Europeans). (Tables I and II.)

TABLE I.—AVERAGE B.S.R. DURING ATTACKS

	<i>Average B.S.R.</i>	<i>Number of tests</i>
European	58·0 mm.	2
East African	78·0 „	5
Somali	49·2 „	12
Total	61·7 mm.	19

TABLE II.—AVERAGE B.S.R. FOR EACH DAY OF ATTACK

<i>Day of attack</i>	<i>Average B.S.R.</i>	<i>Number of tests</i>
1st	79·8 mm.	5
2nd	65·3 „	6
3rd	42·0 „	2
4th	4·0 „	1
5th	30·0 „	2
6th	110·0 „	1
11th	6·0 „	1

An attempt was made to ascertain whether the B.S.R. dropped to normal between attacks or whether it could be used as an index of prognosis in the prediction of further relapses. Examinations were therefore made at intervals for several weeks after the last bout of temperature. The results are depicted in Table III.

TABLE III.—AVERAGE B.S.R. AFTER ATTACKS

<i>Weeks</i>	<i>East African</i>		<i>European</i>		<i>Somali</i>		<i>Total</i>	
	<i>Average B.S.R. mm.</i>	<i>Number of tests</i>	<i>Average B.S.R. mm.</i>	<i>Number of tests</i>	<i>Average B.S.R. mm.</i>	<i>Number of tests</i>	<i>Average B.S.R. mm.</i>	<i>Number of tests</i>
1st	40·9	10	38·7	9	32·6	32	37·4	51
2nd	35·7	6	28·2	5	32·0	22	32·0	33
3rd	51·0	6	13·5	2	13·7	16	26·1	24
4th	—	—	30·0	1	31·1	12	30·5	13
5th	—	—	—	—	11·0	7	11·0	7
6th	—	—	—	—	10·0	6	10·0	6
7th	—	—	—	—	17·3	3	17·3	3
8th	—	—	—	—	19·5	2	19·5	2
9th	—	—	—	—	34·0	1	34·0	1

As shown in the table, there is a tendency for the figures to diminish after the fourth week, but there was still a tendency to a raised level even after two months. There was, of course, great variation in individual figures. A few cases dropped permanently to normal after a few weeks, as far as could be calculated from estimations over a period of three to four weeks. An interesting point

about these tests was the marked and sudden variations in B.S.R. without any corresponding rise of temperature or change in the patient's clinical condition. For instance, one patient showed a rise from 22 to 90 mm. during the three weeks after his last attack, in spite of the fact that he was feeling perfectly well and was discharged to his unit after four weeks. Another dropped to nil in three weeks, rose to 80 in four weeks, and again dropped to 9 in five weeks, without any rise of temperature or change in his general health. A third fell to one in two days, rose to 96 in eight days, and again fell to 4 in twenty-four days. One patient had a B.S.R. of 112 mm. ten days after his second attack and six days before his last rise of temperature to only 99°; he felt very fit at the time of these tests. One had a very high rate for three weeks after his third attack, rising to a maximum of 132 mm. four days before his last relapse, in spite of the fact that he was feeling quite well in the intervals between his pyrexial bouts.

B.S.R. estimations were also made before relapses (Table IV) in order to

TABLE IV.—AVERAGE B.S.R. BEFORE RELAPSES

Weeks before relapses	East African		European		Somali		Total	
	Average B.S.R. mm.	Number of tests	Average B.S.R. mm.	Number of tests	Average B.S.R. mm.	Number of tests	Average B.S.R. mm.	Number of tests
1	50.5	9	47.0	4	25.3	18	40.9	31
2	62.7	3	55.0	2	21.7	8	46.5	13
3	88.0	1	19.5	2	17.0	1	41.5	4
4	—	—	—	—	—	—	—	—
5	—	—	—	—	20.5	2	20.5	2

find out whether there was any tendency for a rise to occur as the next relapse became more imminent. The average was 40.9 mm. one week, 46.5 mm. two weeks, and 41.5 mm. three weeks, before the attack. There was, therefore, no tendency for the B.S.R. to rise as the time approached for the next relapse.

One is tempted, after studying the B.S.R. figures, which remain raised for weeks after all symptoms have subsided, to conclude that, even after all clinical signs have disappeared, there still remains a latent infection in the body. Such a view is supported by the long interval which may sometimes occur between relapses (sixty-three days in one case), and by the fact that spirochaetes have been isolated from the brains of guinea-pigs fourteen months after primary inoculation (Manson-Bahr, 1945), and by the insidious manner in which the organism is transmitted by the tick through its ova even to the third generation, without the necessity for any intermediary host.

It appears that the spirochaete of relapsing fever resembles that of syphilis in its characteristic property of remaining latent in the body for long periods without causing symptoms. I had one patient who developed a bout of relapsing fever (confirmed by the discovery of spirochaetes in his blood) exactly one year after his previous attack; one wonders whether the second attack was a fresh infection or a very late relapse of his original illness. Another feature common

to the spirochaetes of relapsing fever and syphilis is the neurotropic character and the tendency to latent infections in the nervous system. Garnham *et al.* (1947), working in East Africa, found that neurotrophism was rare in the louse-borne spirochaete, although invariably present in the tick-borne variety. An interesting feature of the B.S.R. figures is the curious way in which the B.S.R. fluctuates without any corresponding clinical signs of activity. This phenomenon suggests that fluctuation may occur in the intervals of the infection quite independently of the clinical features as indicated by relapses of pyrexia.

Treatment.—There have been so many reports about the value, or lack of value, of arsenical therapy that, at the suggestion of Brigadier E. R. Cullinan, I decided to investigate its therapeutic action, employing untreated controls taken at random. These tests were performed at Mandera, in Somaliland, and at Diredawa, in Abyssinia, the patients including Europeans, East Africans and Somalis. Neosalvarsan 0.6 gramme was given intravenously at the onset of the first relapse, the primary attack being untreated on account of the difficulty of seeing the patient at the onset of his disease. 20 patients were treated and 14 employed as untreated controls. The following were the statistics drawn from 91 attacks of pyrexia amongst the treated cases and 49 amongst the untreated :

Of the 20 treated cases, 18 relapsed after arsenical therapy.

It must be concluded that at Mandera and Diredawa arsenical therapy cannot be claimed to have had any therapeutic value.

At Borama, in British Somaliland, on the other hand, and at Urso, in Abyssinia, 4 Free French Somalis were treated without a single subsequent relapse. 5 patients were also treated at Yatta, in Kenya, 4 of whom responded without a recurrence and 1 had a single extremely mild relapse. Quin and Perkins (1946), working among African troops in East Africa, observed little benefit from N.A.B. injections, the 80 cases treated exhibiting the same average of two relapses as the 49 controls.

TABLE V.—THERAPEUTIC EFFECT OF INTRAVENOUS ARSENIC IN TICK-BORNE RELAPSING FEVER AT MANDERA AND DIREDAWA

	<i>Average number of attacks from onset</i>	<i>Average duration of attack after first relapse</i>	<i>Average maximum temperature after first relapse</i>	<i>Average interval between attacks</i>	<i>Average B.S.R. after 7 days from end of first relapse</i>
Treated cases	4.5	3.3 days	101.3°	10.3 days	50.7 mm.
Untreated cases	3.5	3.1 ..	101.7°	7.3 ..	48.7 ..

It therefore appears that, in certain localities, arsenic did produce benefit, while in other districts it had no effect whatsoever. The explanation probably lies in the fact that certain strains of tick-borne spirochaetes have become arsenic-resistant, possibly through previous arsenical treatment of these strains, just as strains of gonococci became sulphonamide-resistant in Italy and elsewhere.

A similar theory probably explains the differing views with regard to the value of arsenic in the louse-borne disease for, whereas the author (1942) found this drug to be of great value in the Soddu district of Abyssinia, and Garnham. Davis, Heisch and Timms (1947) found it of benefit in the Kenya disease. Wolman (1944) claimed that it had no effect in Addis Ababa.

Penicillin was administered to 2 patients with tick-borne relapsing fever. both Europeans, in the dosage of 15,000 units every three hours for six days. One of the patients, whose treatment commenced during the sixth attack, developed seven subsequent relapses, while the other, treated during his fifth attack, suffered no further pyrexia.

The general impression was that penicillin, in the dose given, was ineffective in preventing relapses. This would be expected in view of the results of animal experiments, for the effective dose in mice is 400,000 units per kg. administered in divided doses every three hours over a period of forty-eight hours. This dose approximated closely to the toxic dose for the particular preparation employed. Applying these results to man, the curative dose would be 25,000,000 units for a man of 60 kg. (Eagle, Magnuson and Musselman, 1944).

It must, however, be admitted that the first patient appeared to obtain symptomatic benefit. He had been ill for thirty-nine days with a very severe persistent headache. He suffered from attacks of vomiting and, although his Kernig's sign was negative and neck rigidity was absent, his cerebrospinal fluid was under increased pressure and contained 46 mg. protein per 100 c.c. The cell count was 9 per c.mm., the chloride 770 mg. and the sugar 50 mg. per 100 c.c. Lumbar puncture relieved his headache for twenty-four hours, after which it returned with its previous intensity. Penicillin was started during his sixth relapse. His headache began to improve twenty-four hours after the commencement of the penicillin and had disappeared by the end of the six days' course. The interval between relapses, which had previously not exceeded eight days, was extended to twenty-two days before his next bout of pyrexia. In view of the natural tendency for this disease to diminish in severity during its course, it is impossible to form any definite conclusion on these isolated cases. At the present time opinion with regard to the value of penicillin in human relapsing fever is divided. Workers on the tick-borne variety, for example, have had little success; they include Merskey (1947), who observed no improvement in 2 cases treated with under 1,000,000 units in Cullinan, Transvaal; Pospelova-Strom and Tiburskaya (1946), who, employing a dosage of 23,000 and 50,000 units on the second and third days respectively of the primary attack, were unable to prevent a relapse in an Iranian strain of spirochaete; and Muwazi, who administered four-hourly intramuscular injections, up to a total dosage of 900,000 units in forty-eight hours, to 29 patients in Uganda, without apparent benefit. Better results have, however, been recorded in louse-borne relapsing fever by Ingraham and Lapenta (1946), who cured 52 cases in Egypt with 25,000 units of penicillin every three hours, and by Ling (1947), who was able to prevent relapse in 2 cases of Chinese relapsing fever by doses of 960,000 and 1,780,000 units. Streptomycin holds

out more hope of success, and has already proved of greater value than penicillin in the eradication of residual cerebral infection in mice infected with *Treponema duttoni* (Levaditi and Vaisman, 1947).

A Somali with iritis, and spirochaetes in his blood, was treated with two-hourly instillation of penicillin, 2,000 units per c.c., into his conjunctival sac, and improved within twenty-four hours. It is, of course, impossible to form an estimate of the value of local penicillin from the examination of a single case.

SUMMARY

(1) An account of the clinical features and complications of tick-borne relapsing fever in Somaliland has been given.

(2) The Kahn test was negative in the 8 cases examined.

(3) In this series, neutrophilia was the exception rather than the rule.

(4) B.S.R. estimations were made during, and for several weeks after, attacks. There was a tendency to a raised rate for several weeks after an attack, and to fluctuation in the B.S.R. without any corresponding clinical signs of activity.

(5) It is believed that a latent infection persists in the body (possibly the brain) for a considerable period after all clinical signs have disappeared. An analogy is drawn to the latency and nerutoporic character of *Treponema pallidum*.

(6) Arsenical therapy was of benefit in some areas, while proving of no value whatsoever in other districts, the explanation probably being the occurrence of arsenic-resistant strains of spirochaetes in certain localities.

(7) Penicillin did not prevent relapses.

REFERENCES

- CHARTERS, A. D. (1942) *Trans. R. Soc. trop. Med. Hyg.*, **35**, 27.
 DAVIS, L. J. (1946) *Practitioner*, **157**, 15 and 16.
 EAGLE, H., MAGNUSON, H. G., and MUSSELMAN, A. D. (1944) *U.S. Pbl. Hlth. Rep.*, **59**, No. 18.
 GARNHAM, P. C. C., DAVIES, C. W., HEISCH, R. B., and TIMMS, G. L. (1947) *Trans. R. Soc. trop. Med. Hyg.*, **41**, 151.
 HEILMAN, R., and HERRELL, W. E. (1943) *Proc. Mayo Clin.*, **18**, 457.
 INGRAHAM, H. S., and LAPENTA, R. G. (1946) *U.S. Nav. Bull.*, **46**, 1719 (quoted by *Trop. Dis. Bull.*, 1947, **44**, 212).
 LEVADITI, C., and VAISMAN, A. (1947) *C.R. Acad., Sci.* **225**, 769 (quoted by *Trop. Dis. Bull.*, 1948, **45**, 182).
 LING, C. C. (1947) *Chin. med. J.*, **65**, 225 (quoted by *Trop. Dis. Bull.*, 1948, **45**, 343).
 MANSON-BAHR, P. H. (1945) *Manson's Tropical Diseases*, 12th Ed., pp. 186 and 196. London: Cassell & Co.
 MCFARLANE, R. G., and O'BRIEN, J. R. (1946) *Practitioner*, **157**, 12.
 MERSKEY, C. (1947) *Clin. Proc. Cape Town*, **6**, 113.
 MUWAZI, E. M. K. (1946) *East Afr. med. J.*, **23**, 55.
 POSPELOVA-STROM, H. S., and TIBURSKAYA, N. A. (1946) *Med. Parasitol. Moscow*, **15**, 54 (quoted by *Trop. Dis. Bull.*, 1947, **44**, 213).
 QUIN, E. C., and PERKINS, E. S. (1946) *J. trop. Med. Hyg.*, **49**, 30.
 WOLMAN, M. (1944) *East Afr. med. J.*, **21**, 1.

THE BRITISH ARMY DIVISIONAL MEDICAL ORGANIZATION¹

BY

Major General R. D. CAMERON²

Royal Army Medical Corps

THE medical organization within the division consists of (a) the Assistant Director of Medical Services (A.D.M.S.)³ and his staff ; (b) Field Ambulances,⁴ three in an infantry or airborne division and two in an armoured division ; (c) one field dressing station (F.D.S.) per armoured or infantry division, also allocated to an airborne division in a ground role ; and (d) regimental medical establishments.

ASSISTANT DIRECTOR OF MEDICAL SERVICES

The A.D.M.S., a colonel, is the adviser to the divisional commander on all matters which affect the health of the troops, and this includes advice on health discipline and the prevention of disease. He commands the medical units in the division and is responsible for formulating the medical plan for the collection and disposal of casualties. He is attached to the Adjutant-General's branch of the staff and is located at main divisional headquarters. He has 2 medical officers on his staff : A Deputy Assistant Director of Medical Services (D.A.D.M.S.) and a Deputy Assistant Director of Army Health (D.A.D.A.H.). In addition there are 15 noncommissioned officers of the medical corps : 6 clerks, 1 orderly, and 8 sanitary assistants.

THE FIELD AMBULANCE

All Field Ambulances are standard and are similar in personnel. Field Ambulances with airborne divisions, in view of their special employment, have different types and scales of equipment and a minor difference in transport. A Field Ambulance consists of an H.Q., and H.Q. section, and one company.

¹Reprinted by kind permission of the Editor, The U.S. Armed Forces, Medical Journal.

²Inspector of Training of the British Army Medical Services at the time of writing this article and now Director of Medical Services (Theatre Surgeon), The British Army on the Rhine.

³Corresponds to our division surgeon.

⁴Corresponds to our old collecting company or a combination of the collecting section of a regimental medical company and a section of an ambulance company under our new T/O.

which is divisible into a small company H.Q. and three equal sections similar in every way to the H.Q. section. The sections form casualty clearing posts (C.C.P.)¹ for the evacuation of regimental aid posts (R.A.P.)² and are administered by the company H.Q. The H.Q. of the Field Ambulance holds the bulk of the equipment and forms the advanced dressing station (A.D.S.).³ The Headquarters section assists the A.D.S. or is used for leapfrogging, augmenting, or relieving the company as required. The organization of the unit permits great flexibility.

The primary role of the Field Ambulance is the rapid collection of sick and wounded, the rendering of first aid to casualties, their preparation and classification for further disposal, and the completion of necessary documentation. It is a mobile unit and is not equipped to provide other than the simplest accommodation and essential treatment. When not engaged in active operations the Field Ambulance may hold patients with minor illnesses. This is a secondary role and cannot be undertaken in combat when casualties must be evacuated as soon as they are fit to travel. The Field Ambulances of airborne formations are specially trained and equipped for their special duties. When taking part in an airborne operation each Field Ambulance has two field surgical teams attached to enable the unit to operate independently when it is out of contact with ground forces. As soon as a link-up with the ground forces is made, the normal casualty evacuation procedure is reverted to.

Field Ambulances are divisional troops, and as such their disposition is controlled by the A.D.M.S. acting under authority of the divisional commander. One Field Ambulance is usually allotted in support of each infantry brigade⁴ and then becomes an element of the brigade group, in which case it conforms to the movements of the brigade, and collects the casualties occurring on the brigade front. The siting, opening, and closing of the A.D.S.s is controlled by the A.D.M.S., except in the initial stages of a planned battle when he frequently delegates his authority to the Field Ambulance Commander, in which case the latter will inform the A.D.M.S. in advance of any intention to move and at once report the location to the A.D.M.S. In certain operations the Field Ambulance is placed under the brigade commander, e.g. when the brigade is acting independently or in the early stages of an airborne operation. In this event the Field Ambulance Commander, with the concurrence of the Brigade Commander, will locate and open the A.D.S. He should, if possible, intimate his intention to the A.D.M.S. and invariably report its location. An A.D.S. may be opened for each brigade in action, or the A.D.M.S. may decide to open one, or possibly two, for the divisional front.

The Field Ambulance Commander attends brigade operation conferences

¹Corresponds to our collecting post or point.

²Corresponds to our battalion aid stations.

³An intermediate unit corresponding to a combination of part of our collecting and clearing stations.

⁴Corresponds to our regimental combat team.

and maintains contact with brigade headquarters throughout operations in order to obtain up-to-date information which will enable him to arrange for the speedy evacuation of casualties. The Field Ambulance Commander is the senior medical officer of the brigade, and as such is the adviser to the brigade commander in medical matters. He should frequently visit all units in the brigade area.

The guiding principles in the evacuation of casualties within the division are : (a) the maximum speed consistent with efficiency, limiting treatment to controlling shock and hæmorrhage, relieving pain, and rendering the patient fit for evacuation ; and (b) minimal handling of the patient such as transfers between ambulances and change of dressings.

Field Ambulance Section.—The role of a Field Ambulance section is to collect casualties from R.A.P.s and evacuate them without delay to the A.D.S. It can perform this function either by : (a) direct transportation of casualties from R.A.P. to A.D.S., (b) establishing an ambulance post at an intermediate point, or (c) establishing a casualty collecting post (C.C.P.). It is often convenient to use two or more sections together thus forming a combined C.C.P. Prior to an engagement it is usual to attach one or more stretcher-bearer squads from the section to the R.A.P. If the ground permits, one jeep or ambulance is also attached. Treatment in a C.C.P. should be confined to such first-aid measures as the regimental medical officer (R.M.O.) may have been unable to carry out, and first aid for cases which have not passed through an R.A.P. It is primarily a check point, and it is only necessary to ensure that hæmorrhage is under control and that fractures and large flesh wounds are immobilized. Dressings and splints should not be removed unless such a procedure is essential before further evacuation. Hot sweet tea should be available. When there is an extended line of evacuation there may be occasions when it is necessary to assign to the C.C.P. its additional role of a treatment centre. These occasions should be rare. The main object is to transport casualties to the A.D.S. as quickly as possible.

Field Ambulance Company Headquarters.—The role of the company headquarters is to control, administer, and maintain the three company sections. In addition, the company commander controls and co-ordinates forward evacuation from R.A.P.s and locates C.C.P.s under the Field Ambulance commander's direction. The company commander frequently visits R.M.O.s and maintains contact with the brigade headquarters staff. The company headquarters is located where it can best control evacuation from the brigade group. This is normally at the junction of the lines of evacuation from which all sections are operating. It is not intended to form a medical post but a small amount of medical equipment is carried for the treatment of local casualties and sick.

Field Ambulance Headquarters.—The H.Q. of a Field Ambulance forms the A.D.S. It generally operates under the control of the A.D.M.S. division, but may occasionally be placed under the control of the brigade commander. In the former case, it will usually be possible for the A.D.M.S. to select the site

of the A.D.S. only at the commencement of an engagement, particularly in mobile warfare. It will usually be the task of the Field Ambulance commander to select any subsequent site and report this to the A.D.M.S. and the brigade commander or commanders concerned. When the A.D.S. serves more than one brigade, the A.D.M.S. controls its movements and issues orders to the Field Ambulance commander accordingly giving the approximate area in which to open, and the time for opening. When the unit is under the control of a brigade commander, the Field Ambulance commander normally selects the site of the A.D.S. in conjunction with the brigade staff.

Advanced Dressing Station.—The role of the A.D.S. is to receive casualties from one or more brigade fronts, through the C.C.P.s, or directly, and to provide essential treatment in order to render the casualties fit for evacuation as soon as possible. Speed in passing wounded through the A.D.S. is essential. The A.D.S. is the main medical centre in the brigade or divisional area and is formed by the H.Q. of a Field Ambulance. It is equipped to provide only such surgical treatment as is essential to render casualties fit to travel to the casualty clearing station (C.C.S.)¹ where major surgical facilities are available. The A.D.S. is equipped with shelters and tents for the accommodation of casualties. It can accommodate 150 patients. It may be wholly under canvas, but the use of buildings when suitable and available is a great advantage.

An A.D.S. would be located on, or adjacent to, good roads and requires :

- (a) An adequate in- and out-circuit for ambulances.
- (b) Accommodation (preferably in buildings) for casualties divided into reception, treatment, and evacuation zones. (For the purpose of evacuation to a C.C.S., walking patients are classified as "sitting." Certain casualties, initially sitting or walking wounded, become litter patients before they can be evacuated. When possible, separate accommodation should be allotted to litter and sitting patients.)
- (c) Facilities for treatment and documentation.
- (d) Water supply, cookhouse for patients and personnel, latrines, and mortuary (gas protection may have to be provided).
- (e) Pack stores for equipment and arms.
- (f) Reserve of splints, dressings, blankets, and stretchers.
- (g) Accommodation for personnel.
- (h) Natural protection against shelling and bombing. When time permits and particularly in position warfare, an A.D.S. should be able to withstand direct hits from small projectiles, and slit-trench protection should be provided. The location of the A.D.S. and all medical posts must be clearly shown by day and night signs. All road junctions in the neighbourhood in all directions must be adequately signposted. All signposts must be removed on change of location. Specifically detailed N.C.O.s will carry out signposting as a drill. The staff of an established A.D.S. should be divided into teams so that rest periods can be arranged and additional staff are easily available to augment the A.D.S.

¹Corresponds to the patient-holding element of our clearing company.

when required. The personnel of H.Q. section, when with the A.D.S., should be incorporated in the teams.

Special care must be taken of the personal effects of casualties immediately on admission. This is the duty of the N.C.O. in charge of the pack store, who will collect, list, pack, label, and seal these articles. Particular attention must be given to money, valuables, rings, watches, and any articles of sentimental value. Similar care must be taken of the personal effects of the dead. These effects are specially labelled and sent to the second echelon.

The detailed tasks of the A.D.S. are :

(a) Treatment of the casualty : Wet and soiled clothing is removed and the patients are clad in pyjamas. They are made as comfortable as possible and kept warm and dry. Hot sweet tea and a hot meal are given to all, except when medical reasons prohibit this. All previous treatment is checked and any omissions rectified. Tourniquets if previously applied are removed. If hæmorrhage persists, other methods are adopted for its control, viz. ligature of the artery or the application of pressure forceps, failing which, the tourniquet is reapplied. Sucking chest wounds are closed by temporary means. If a limb is so shattered that it can be severed by a pair of scissors, it is removed to avoid continuance of shock. Pain is controlled by injection of morphine ; sedation of exhausted patients is undertaken. Shock is combated by the aforementioned methods and the use of plasma. As a rule it is better to avoid transfusion with whole blood at the A.D.S. If, however, the chances of survival are doubtful without blood transfusion it should be begun and continued as a drip in the ambulance on the journey to the C.C.S. The time and place for a blood transfusion is normally at the C.C.S. prior to an operation. Every casualty to whom morphine has been administered is marked on the forehead with the letter " M " in grease pencil. Similarly the letter " T " is used when a tourniquet is employed.

(b) Documentation of the casualty : An accurate regimental and clinical record of casualties is a definite responsibility of all medical units through which casualties pass. This record consists of the number, rank, name, unit, and diagnosis of the casualty. It is required so that the next-of-kin can be informed of the casualty as soon as possible. General headquarters, personnel, second echelon, are charged with this duty, and to carry it out they depend on the nominal rolls of casualties received from medical units. These rolls are an extract from the admission and discharge book kept by all medical units and are forwarded daily to G.H.Q., second echelon, by every medical unit in the force. A record of the clinical condition and treatment of casualties in their progress through medical units is necessary so that each succeeding medical unit can adopt the optimum treatment. The first place in the line of evacuation where a permanent record of the casualty can be undertaken is the A.D.S. formed by the headquarters of the Field Ambulance. Documentation must not delay treatment or evacuation of the casualty.

(c) Classification of the casualty : The wounded are placed in one of three priorities according to their clinical condition. Priority 1 includes patients

requiring resuscitation and/or urgent operations ; e.g. penetrating abdominal wounds, open chest wounds, compound fractures of the femur, extensive lacerated muscle wounds, and severe shock. Priority 2 includes patients requiring early operation and possibly resuscitation ; e.g. severe and multiple wounds, compound fractures, and head injuries. Priority 3 includes all other wounded. In general these will be sitting patients. Priority 1 and 2 casualties amount to 15 or 20 per cent of the total.

(d) Evacuation of the casualty : Priority 1 and 2 casualties are evacuated to the C.C.S. (or to the advanced surgical centre if formed). Priority 3 casualties are also evacuated to the C.C.S. except those whose injuries are so trivial that they will be fit to return to duty in a few days. They are sent to the divisional F.D.S. Patients with severe illness arriving at the A.D.S. are evacuated to the C.C.S. and patients with minor illness including exhaustion are transferred to the divisional F.D.S. Patients transferred to the divisional F.D.S. are moved by ambulances of the Field Ambulance. All other patients are evacuated by ambulances and troop-carrying vehicles of the motor ambulance company under arrangements made by the Deputy Director of Medical Service, Corps.¹

FIELD DRESSING STATION

An F.D.S. consists of a small administrative headquarters and two equal sections which can operate away from the unit H.Q. but are maintained by the H.Q. The sections may operate together, separately, or be used for leap-frogging. An F.D.S. is designed to hold 100 patients, 40 on beds and the remainder on stretchers. The primary role of the divisional F.D.S. is to maintain the fighting strength of the division within the division by holding all minor sick, injured, and mildly exhausted patients. Normally only patients who are expected to be fit for return to duty in seven days are held. This period may be altered according to the local or general situation. In special circumstances the F.D.S. may be employed in the divisional evacuation plan. The F.D.S. is sited by the A.D.M.S. in consultation with the divisional staff and is normally in the rear divisional area and away from gun positions. The F.D.S. possesses shelters and tents, but should be in buildings if suitable and available. Adequate bathing, reading, and other amenities should be provided whenever possible. Evacuation from the F.D.S. to the C.C.S. is by ambulances of the motor ambulance company, and is the responsibility of the Deputy Director of Medical Service Corps.

Intercommunication between R.M.O.s, sections, and Field Ambulance H.Q. is normally by dispatch rider or returning ambulance. Between A.D.M.S. and medical units it is by dispatch rider, telephone, or radio. Brigade headquarters may also arrange to link up the affiliated Field Ambulance by radio.

REGIMENTAL MEDICAL ESTABLISHMENTS

In war, each battalion and similar units have a medical establishment consisting of one medical officer and one to six N.C.O.s, according to the unit.

¹Corresponds to our Corps Surgeon.

One N.C.O. is provided by the unit as the regimental medical officer's orderly. Regimental personnel are detailed as regimental stretcher bearers and are placed under the orders of the R.M.O. They are distinguished by a stretcher bearer's armband lettered " S.B. " worn on the left arm. In addition, personnel of the unit are specially trained in water and sanitary duties. A number of smaller units do not carry a medical officer on their establishment but on active service have personnel trained in water and sanitary duties and first aid. In such cases, a medical officer of a near-by unit is appointed as officer in medical charge, in addition to his other duties.

Regimental Medical Officer.—The officer in medical charge of a unit is directly under the control of the administrative medical officer of his formation. in professional matters but in other respects he is under the orders of the unit commander. The regimental aid post should normally be in close proximity to the centrally placed unit headquarters to permit access to and from all parts of the unit front. The R.A.P. should afford protection from rifle fire and machine-gun fire and mortar splinters. The exact site must depend on the tactical situation. If possible, the R.A.P. should be accessible to the ambulances of the Field Ambulance. Unit R.A.P.s should not be amalgamated.

In action, the R.M.O. should locate himself at his R.A.P. It is rarely possible and indeed it is inadvisable for him to proceed further forward, since when he is separated from his medical equipment, he can do little more than a trained stretcher bearer ; meanwhile, casualties requiring his expert aid would be accumulating in the R.A.P. During the battle an R.M.O. can only carry out the essentials of first aid. This includes the control of hæmorrhage, the immobilization of fractures and gaping flesh wounds by splints, the commencement of prophylactic treatment with sulphonamides or antibiotics, the applications of dressings, and the administration of morphine. Close liaison between the R.M.O. and the Field Ambulance is essential. Although the R.M.O. should inform the supporting section of any change of location of the R.A.P., it is the responsibility of the Field Ambulance commander to maintain touch with the R.A.P. by means of his company and section commanders.

At Random

THREE "C"s

CONTRIBUTIONS, CORRESPONDENCE and CRITICISM are three "C"s which form the body, the lifeblood and the nervous system of any respectable journal such as ours.

Can we in fact call ourselves a *respectable* journal? We think definitely—*yes*. In fact, sometimes almost too *respectable* and ponderous; with neglect of the ordinary daily happenings, thoughts and experiences of the Service and our readers.

Without any wish to emulate or intrude on the perquisites and sphere of the Corps Magazine we are sure that there is a place and some room in the Journal for other matters than purely scientific papers and that these other matters would be welcomed by many of our readers.

In the nineteen-twenties a feature of the Journal was, for a considerable period, a "*Correspondence Circle*." In this, numerous Corps and Service Members expressed themselves in print freely and apparently joyfully. The letters of this *Correspondence Circle* contained most varied, most valuable and really most interesting information, views and facts. Not only were they interesting to read but their very provocation produced answer and counter answer.

Recently we have been able to introduce a few items of correspondence and would like to see or receive more of these which could be included in current numbers. Of course, at the moment it is somewhat farcical to talk about *current numbers* when the November number appears in the middle of February. But the November make-up went to the Printers at the beginning of October and other monthly make-ups at their respective monthly intervals.

Now that the "Trade Disputes" have been settled the Printers are making every effort to catch up and we hope that the *current number* will actually become so soon, and that then each number will appear on the 1st of the respective month.

But it is *Correspondence* we need and for which we are now asking, correspondence which may be published and which will give varied information, will criticize and which will provoke replies; all these will be welcomed for publication.

Criticism will also be welcome either of the Journal and its matter and make-up or of the material of the Contributions. In the case of the former we will welcome it, whether that criticism be merely destructive criticism or constructive, and will endeavour to profit by the critical comments. In the case of the

latter we are prepared to hold the ring or glove while the contestant, critic and criticized wage a wordy and provocative battle in the correspondence columns.

In the February number we were able to publish a severely critical letter and some replies thereto which had been received some months ago. Profit was made, as far as practicable, from the criticisms at once ; but unfortunately delay in obtaining permission to publish these letters had delayed their appearance. We welcomed the criticism even though agreement to certain items could not be accorded.

And, yet again, we would welcome *more*. We and probably the authors would welcome criticism of the published papers ; either of the opinions expressed, the subject matter given, the experimental methods and the conclusions drawn. It is often most depressing and even disheartening for the eager and ambitious author who, after much labour, thought and trepidation, actually submits a long paper on his special subject merely to have it accepted and published in the Journal and apparently pass into oblivion and thereafter to receive or hear no word of comment, critical or appraisive, on his efforts and *magnum opus*. Will not some readers kindly help him out of his depression by making comment in the Correspondence Columns ?

Contributions, of course, form the main body of the Journal. It is a voracious body requiring constant sustenance, but it is also omnivorous and capable of digesting and absorbing many *varieties of articles*. Even though these articles are not strictly scientific they will be welcome for publication, so long as they have some bearing on the life and activities of the Corps and of its members and so long as they are interesting to one or other group of Journal readers.

But there are two types of *Contribution* to the sustenance and maintenance of the Journal.

As well as the contributions in kind, material contribution of articles which are so necessary for a well-filled body, there is the second kind of contribution in the form of subscription which too are so necessary to meet the costs of production. Unfortunately not long ago the Managing Committee had to raise the annual subscription to meet the rising cost of production. But, and this is where personal contribution of existing subscribers can prove valuable, the more that new subscriptions can be obtained the better will be the production. We learn with regret that there are even now many in the Service who are not regularly subscribing and who might be readily persuaded by those who are, or who would become subscribers if their attention was drawn at an early stage in their service career to this need, can we even say this pleasure and profit ? of becoming permanent subscribers. We are endeavouring to make it a pleasure and a profit, but success must depend on Contributions of both kinds and receipt of a full measure of the 3 Cs.

General Article

THE WORK OF ST. DUNSTAN'S

BY

Major BASIL CURTIS

Public Relations Officer

ST. DUNSTAN'S was founded in 1915 by the late Sir Arthur Pearson, and has since looked after some 5,000 British men and women blinded on or as a result of war service, providing medical attention, adult education, technical and professional training, rehabilitation, settlement in home and work, and perhaps most important of all, the guarantee of lifelong after care. St. Dunstan's is, then, a mixture of a university, a technical college, and a welfare society, and there is no doubt whatever that without this wonderful organization with its great and varied resources and experience, these war-blinded men and women would not be as happy as they are today, to say nothing of the spiritual and moral encouragement membership of the family of St. Dunstan's creates and maintains.

Today Sir Ian Fraser, who was himself blinded in the first Great War, is Chairman of the organization, and Sir Neville Pearson, the son of the founder, is the President.

The first job St. Dunstan's has to do is to build up a man's self-confidence, and to help him to develop the art of seeing through the senses of touch and hearing. To restore and develop self-confidence involves education in the widest sense, and preliminary training may take from six to twelve months during which time the blind man learns how to walk about alone in his new world of darkness, how to shave himself, and how to take pride in his clothes and appearance, for it is often said that you can tell a St. Dunstaner by his bearing and behaviour. While this preliminary training is in progress, the staff, from orderly and guide to education officer, matron and the Commandant himself, study the individual's ability, character and ambition, in this way they begin to get an idea about what occupation will suit him best, so that before the preliminary training is over the student can be helped to decide upon a career.

The main object of St. Dunstan's, then, is to train a blind ex-service man so that he may go out into the world and take his place as far as possible as a normal worker, and not to keep him in a special home or a sheltered workshop or segregated from his friends. Sir Arthur Pearson himself once said, St. Dunstan's must see to it that all British war-blinded soldiers went back to

their homes and led normal lives, or nearly so, and this has surely been done. By careful instruction and guidance the black outlook of early blindness gradually begins to give way to a visualized world built up by the imagination out of previous knowledge of form and design stimulated by impressions that have been felt or heard, or to a lesser extent, smelled. Woodwork, basket making, string work, model making with metal or plastic parts, and instruction in the use of Braille cards, dominoes, rifle shooting, and other pastimes and games, as well as outdoor sports such as running, walking, fencing, tug-o'-war, jumping, rowing, horse riding, tandem cycling, etc., play their part in developing the St. Dunstaner's self-confidence and the art of seeing through the senses of touch and hearing.

The majority of St. Dunstaners of the Great War were trained to work in their homes in handicrafts, and this was a satisfactory scheme which brought activity and a limited remuneration to many men. But home handicrafts as a means of providing remunerative occupation for the blind suffers from gross disadvantages. Machine-made products compete, organized supply of raw materials and marketing of finished goods is costly and uneconomic, so that later experiments were made to place blind persons in the machine shop or on the assembly line or in some other work in a factory. As soon as the late war broke out, St. Dunstan's made further moves to develop this idea and training workshops were established where the blinded could learn to operate lathes, drills, presses, routers, plaster presses and other semi-automatic machinery, and many men have now been successfully placed in this type of work.

Chief among the limited number of occupations for which large numbers of blind persons can be trained with a good prospect of effective employment are physiotherapy, telephone operating, small retail shop management and poultry farming—apart, that is, from the factory work which has developed so much in recent years.

But all this apart, individual St. Dunstaners have made a success of an amazing number of other careers. The first thing the officials do is to ask themselves, can the man go back to the job he was doing before, so that he can make use of his previous knowledge? By inventive skill and ingenuity many surprising results have been achieved. St. Dunstan's attitude is that such an attempt must not fail for lack of thought or experience or money.

St. Dunstan's method has undoubtedly had outstanding success for the blinded of two world wars, but its success is, however, not to be measured by the number of outstanding men amongst its members, although there are many, but by the fact that it has given to the ordinary man the best opportunity that experience and resource could suggest and money could buy. No organization in the world has taken so large a sample of ordinary men from every walk of life and helped each with such thoroughness and inventive skill to make the best of his shattered life. But there is still much to be done, especially when it is realized that the youngest St. Dunstaner today may well live for another sixty years, and when it is considered, too, that more and more men are still coming to the famous organization for training, for guidance and for help.

During the last year alone 40 first-war cases were admitted to St. Dunstan's—mostly the result of delayed mustard gas poisoning. 41 more young men from the late war were also admitted. The door of St. Dunstan's is indeed ever open and it is to be hoped that, with the generous support of the public—for St. Dunstan's is wholly sustained by public donation—this great work will long be continued into the future.

Matters of Interest

APPOINTMENTS

COLONEL F. J. O'MEARA has been posted from the Depot to command the Q.A. Hospital, Millbank, in relief of Colonel W. A. D. Drummond.

Colonel J. H. J. CROSSE has taken over the senior duties of A.M.D.2 at the War Office from Colonel Eccles and Colonel J. P. DOUGLAS has taken over the duties in A.M.D.3.

Colonel F. C. CHANDLER has been posted to Headquarters Scottish Command to the P.S.M.B. (Highland District).

Book Reviews

TEXTBOOK ON VIROLOGY FOR STUDENTS AND PRACTITIONERS OF MEDICINE.

By A. J. Rhodes and C. E. Van Rooyen, 1949. Pp. ix+312, 40 figs.
New York : Edinburgh : Toronto : Thomas Nelson & Sons. Price 35s.

Most R.A.M.C. Officers who served in Cairo during the war are familiar with the name of Dr. (Major) Van Rooyen and his research work on typhus, poliomyelitis, infective hepatitis, and the laboratory diagnosis of smallpox carried out at the Central Pathology Laboratory.

This textbook is designed to give medical students and non-specialists the basic information of virus and rickettsial diseases of man. It covers recent advances in the subject which have occurred during the last decade, and represents the considered opinion of two workers who have been, and who are, engaged in virus research work.

The nine tables given present in a concise form a collection of data which is otherwise rather difficult to find.

The first nine chapters deal with general principles and the remaining thirty-two consider the specific conditions in man caused by individual viruses and rickettsiæ. Each chapter gives a concise account of the clinical picture and the pathology, but the main emphasis is on the technique and importance of the laboratory diagnosis.

The textbook is excellently printed and well illustrated. The illustrations are clear and well produced.

This book is recommended for the use of all medical officers, and will prove of great assistance to those who serve abroad and require a concise account of the laboratory investigations which the different types of virus and rickettsial diseases need to establish a diagnosis.

A. S.

BLOOD TRANSFUSION. By G. Keynes, M.A., M.D., F.R.C.S. 1949. Pp. 574, 109 figs. Bristol: John Wright & Sons Ltd. London: Simpkin Marshall (1941) Ltd. Price 52s. 6d.

With the uncertainty of the international situation the interest of the Services in problems associated with blood transfusion must, of necessity, be to the fore again. It is therefore most fortunate that there is an up-to-date textbook in which the published work available to the end of 1948 is surveyed and modern technical procedures described.

The task of revising the Army Manual of Resuscitation last published in 1944 will be made much easier, as this book will now be available for reference. Dr. Keynes has been assisted by seven co-authors.

The surgeon, the physician, the pathologist, the pædiatrician, the transfusion officer, and even the historian will find important information on blood transfusion. Sir Lionel Whitby has drawn on his vast experience as Director of the Army Blood Transfusion Service in World War II in contributing a section on the Storage and Preservation of Blood and Blood Derivatives and the Planning of Blood Banks.

Hospital transfusion officers will find much valuable information in the section written by Dr. H. F. Brewer on the Organization of a Hospital Transfusion Department.

The chapter dealing with Blood Derivatives and Blood Substitutes by Dr. R. N. Greaves is rather brief.

This book should prove a valuable addendum to hospital and laboratory libraries.

A. S.

TEXTBOOK OF BACTERIOLOGY. By C. H. Browning and C. H. Mackie. Eleventh edition of Muir & Ritchie's "Manual." 1949. Pp. x+907, 226 figs. Oxford Medical Publications. London: New York: Toronto: Geoffrey Cumberlege, Oxford University Press. Price 50s.

The first edition of Muir and Ritchie's "Manual of Bacteriology" was published over fifty years ago (1897); it was therefore one of the earliest works on the subject.

An interval of twelve years has elapsed since the publication of the tenth edition. The welcome appearance of the new edition brings it up to date with the great advances made in bacteriology during the past decade. It has maintained its high tradition under the authorship of Professors Browning and Mackie. The Manual had for many years been a standard reference book

for Army pathologists, and copies of the tenth or earlier editions are to be found in almost every military pathology laboratory at home and abroad.

In the eleventh edition the authors have departed from the layout of previous editions of the Manual which has now been changed to that of a textbook by which title it will be known in future. The textbook and illustrations have been thoroughly revised. Much of the newer knowledge dealing with advances in electron-microscopy, virus diseases and antibiotics have been included.

This new textbook on bacteriology will continue to be a useful addition in laboratories, particularly those engaged in the training of pathologists and technicians.

The bibliography of over three thousand references at the end of the textbook is a valuable asset. A. S.

THE FOUR PILLARS OF WISDOM. By Surgeon Vice-Admiral Sir Sheldon Dudley. K.C.B., F.R.S. 1950. Pp. 246. Watts & Co. Price 8s. 8d.

This is a most interesting and entertaining book which deals in Admiral Dudley's provocative style with the primary education of the average educated individual who, by present educational methods, is grounded only in the "basic sciences" of physics, chemistry and biology whereas, according to the author, the four arbitrary divisions of Science are in reality "logic, psychology, statistics and semantics"; or, in more popular parlance, "Common sense, intuition, knowledge of the world and a sense of proportion with an innate critical faculty."

Sir Sheldon admits that he was originally educated without this basic training but considers that he has now acquired the knowledge and is able to expound the precepts arising therefrom.

This he proceeds to do in his usual stimulating style, drawing for illustration of his points and arguments on that large store of knowledge of medicine, matters and men which he has absorbed during forty years' service. It is a book well worth reading; critical, stimulating and provocative. T. O. T.

Obituary

Major-General CECIL WILMOT MAINPRISE, D.S.O.

In the Cambridge Hospital, Aldershot, on February 16, 1951, Major-General Cecil Wilmot Mainprise, *D.S.O.*, late *R.A.M.C.*, Retired. Son of the late W. B. Mainprise, Paymaster-in-Chief, Royal Navy, and grandson of the late Captain Thomas Pullen, *R.N.*, he was born in Southsea June 23, 1873. Educated at the Royal Naval School, New Cross, he took the *L.R.C.P.* London, and the *M.R.C.S.* England, in 1897, and entered the service as Lieutenant, *R.A.M.C.*, July 27, 1898. Promoted Captain July 27, 1901, Major July 27, 1910,

Lieutenant-Colonel March 1, 1915, Colonel July 29, 1923, and Major-General September 15, 1926, he retired October 4 the same year.

He was A.D.M.S., Northern Ireland Dist. March 2, 1920 to April 18, 1923; A.D.M.S., Southern Command, May 26, 1923, till appointed Commandant and Director of Studies R.A.M. College, August 28, 1924, which he held till September 14, 1926.

He took part in the Tibet Expedition of 1903-04, being present at the action at Niani, the operations in and round Gyantse, and the march to Lhasa, for which he received the Medal with Clasp.

He served in France from October 1914 till April 1917 and on the Salonika front from March 1918 to March 1919.

Twice mentioned in dispatches he received the *D.S.O.*, the 1914 Star, British War and Victory Medals.

He again saw service in the third Afghan War of 1919, as A.D.M.S., receiving the Medal with Clasp.

J. G. F.

Having served under the command of and with General Mainprise when he was commanding hospitals and was an A.D.M.S. I would like to pay tribute to his memory from the point of view of one of his junior officers. An outstanding characteristic was his very great human understanding of all those around him and his interest in the lives and ways and means of each individual. With his strong sense of humour and a wide knowledge of the ways of the Service and of Life he was a staunch friend, an able adviser and a strict Commander. Well liked and popular with all those serving under him, he must, during years of close contact, shrewd observation and kindly supervision of many a junior, have profoundly influenced and benefited the rising generations of the Corps in his time.

After his retirement he continued to maintain his interest in the Corps, its members and doings and was a well-known figure at all annual Corps events.

T. O. T.

The following further tribute to his memory will be of interest to all who knew him:

Past and present members of the Corps will learn with deep regret of the death of Major-General Mainprise.

During his many years' service he made numerous friends and will be affectionately remembered by them for his charming personality, generosity, kindness and his love of entertaining. All officers of the Corps and Q.A.R.A.N.C. who served with him will remember how he loved a party and will have many recollections of him both as a guest and a host.

He was not outstanding in any particular branch of sport but took a very keen interest in all sporting activities of the Corps, especially Rugby football and cricket. His last public appearance in any sporting event after his retirement was when he appeared in partnership with Major-General H. Marrian Perry in the Veterans' Doubles at a tennis tournament in Cairo.

Born in 1873, he was the son of the late W. B. Mainprise, Paymaster-in-Chief, R.N., and was educated at the Royal Naval School, New Cross, where he captained the Cricket XI for two consecutive seasons. He qualified M.R.C.S., L.R.C.P., from St. Bartholomew's Hospital and entered the Service in July 1898. He underwent his preliminary Corps training at Netley and shortly afterwards proceeded to India.

In 1903 he accompanied General Sir Francis Younghusband's expedition to Tibet in charge of a British Field Hospital and is thought to have been the only R.A.M.C. officer ever to have entered Lhasa. He was very proud of having taken part in this expedition for which he was awarded the Tibet medal and clasp.

After serving at home for a while he returned to India and was present at the Delhi Durbar in 1911 receiving the Coronation Medal, and in September 1914 went to France in command of an Indian Cavalry Field Ambulance and later commanded a Casualty Clearing Station, being mentioned in Dispatches twice and awarded the *D.S.O.* In 1918 he proceeded to Salonika as O.C. 80 General Hospital and later in the offensive against Bulgaria was A.D.M.S., Advanced Base, and after the Bulgar defeat went through to Sofia and then acted as D.D.M.S., 16th Corps.

In 1919 he saw active service again during the Afghan War, being A.D.M.S., Peshawar, and on the termination of hostilities became O.C. of the British Station Hospital, Bangalore. He returned to the U.K. in 1922 becoming A.D.M.S., Northern Ireland, later A.D.M.S., Southern Area, Portsmouth, and finally Commandant of the R.A.M. College from 1924-26.

During this time his friendship with many of the leading London consultants and his introduction of them to the Headquarter Mess did much to seal the already friendly relations which existed between them and members of the Corps.

On promotion to Major-General in 1926 he retired at his own request. He was unmarried and lived with his niece and her husband, Colonel and Mrs. C. D. M. Buckley, for some years past, latterly at Fleet, Hampshire.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library :

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health & Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Santa, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Santa Militaire, Archives del Hospital Universitaire, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s. payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, R.A.M. College, Millbank, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 91, GREAT
TITCHFIELD STREET, LONDON, W.1. TELEPHONE: MUSEUM 2077.

Journal

OF THE

Royal Army Medical Corps

CORRIGENDUM

Vol. XCVI, No. 5, May 1951. *Field Training—Exercise Hereward*

Page 273, under the para headed "Protection against Infiltration and Sabotage," from '(ii) To stop minor enemy . . . to . . . One Rec. P.' *should be deleted and inserted on page 272 under the para "The Division Outline Plan" after '(i) . . . Stanford-Tottington Obstacle'.*

It will be seen that the above is subparas (c) (ii) (iii) and (d) (i) of para 3 of the Division Outline Plan.

	PAGE		PAGE
CONTENTS		Future Medical Officers for the Army.	
ORIGINAL COMMUNICATIONS		By Colonel R. H. ROBINSON, <i>T.D.</i>	299
Chemotherapy in Tuberculosis (A Review of the Literature). By Major G. F. EDWARDS, <i>M.B.E.</i> , M.B., M.R.C.P., Major R.A.M.C. . . .	253	AT RANDOM	
Field Training : Exercise—Hereward. By Major-General K. A. M. TOMORY, <i>C.B.</i> , <i>O.B.E.</i> , K.H.P. . . .	268	Smallpox and Vaccination	307
Mr. James Barry. By Colonel N. J. C. RUTHERFORD, <i>D.S.O.</i> , Late R.A.M.C. . . .	278	CLINICAL AND OTHER NOTES	
Episodes of a General Hospital in War. By Colonel K. FLETCHER-BARRETT, <i>O.B.E.</i> , M.B., F.R.C.S. . . .	282	Royal Naval Tropical Research Unit	309
A.O.R. Medicine 1946-1949. By Brigadier F. J. O'MEARA, M.A., M.D., F.R.C.P.I., D.T.M.&H., Late R.A.M.C.	289	Astronavigation. By Colonel F. M. RICHARDSON, <i>D.S.O.</i> , Late R.A.M.C. . . .	312
		MATTERS OF INTEREST	315
		REVIEW	323
		OBITUARY	324
		EXTRACTS FROM THE "LONDON GAZETTE"	330
		NOTICES	333



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

In

DERMATOLOGICAL

Practice

ECZEMAS · VARICOSE ULCERS
SEBORRHOEIC DERMATITIS
PSORIASIS · PRURITUS
OCCUPATIONAL DERMATITIS

E · S · T · P

(MARTINDALE)
Brand

ETHER SOLUBLE TAR PASTE

The original colourless Coal Tar Cream
with *all* the therapeutic advantages of
crude Coal Tar

Literature and Samples on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone: WELbeck 5555 (20 lines) Telegrams: "Instruments, Weado, London"



Major-General Sir Percy Tomlinson, *K.B.E., C.B., D.S.O., F.R.C.P.*, Royal Army Medical Corps, January 1909—November 1944; Representative Colonel Commandant, 1947.
Died March 6, 1951.

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

CHEMOTHERAPY IN TUBERCULOSIS

(A Review of the Literature)

BY

Major G. F. EDWARDS, M.B.E., M.B., M.R.C.P.

Major, Royal Army Medical Corps

Officer i/c Medical Division, Connaught Hospital

HISTORICAL

FROM time immemorial the search for a drug cure for tuberculosis has continued with but little success until about 1924 when Møllgard introduced sodium aurothiosulphate, though Koch had also used gold in tuberculo-therapy in 1890. The following ten years saw a widespread use of various gold preparations, but the accumulated experience of its toxic effects, and its relatively small value in the therapy of tuberculosis generally, led to its gradual abandonment; and since 1935 but few investigators have used chrysotherapy, although it probably still has a place in certain judiciously selected cases.

It was, however, the introduction of prontosil by Domagk in 1935 which gave a lively impetus to the search for chemotherapeutic substances with bactericidal or bacteriostatic properties against the *M. tuberculosis*. Rich and Follis (1938) reported that sulphonamides exerted an inhibitory action on the development of tuberculosis in laboratory animals, and recognition of this fact led to an increased interest in tuberculochemotherapy, which has continued to progress and develop since then. As a result sulphonamide and its derivatives were tried in man, but were soon found to be of little value (Ellman, Lawrence, and Cummings, 1941). Next the kindred class of sulphones were used by Feldman and his colleagues (1942) on laboratory animals and man and, though found to be more effective than the sulphonamides, they were considerably more toxic to man, especially on the blood-forming organs, and for this reason their use had to be abandoned. The most effective of these compounds was promine or promanide, and its greatest benefit was to be

found when applied locally either to laryngeal lesions (Heaf *et al.*, 1943) or to tuberculous sinuses (Tytler and Lapp, 1942). The next drug to be used, also in the sulphone series, was diasone which was reported by Petter and Prenzlau (1944) to be less toxic than promine, but later results have not shown that any greater benefit can be obtained than with the more recent chemotherapeutic agents. Finally the third member of this series, promizole, has been under investigation since 1944, and though by no means a satisfactory agent it is probably the best of the sulphones, though it may indeed be the progenitor of a new series of drugs, rather than the last member of the line of sulphones (Feldman, Hinshaw and Mann, 1944). All the sulphones can be given by mouth but they are toxic to man, and no adequate evidence has yet been adduced to justify the use of these drugs alone in the treatment of tuberculosis; although satisfactory results have been obtained when they are given with streptomycin in the treatment of tuberculous meningitis, further confirmation is still required (Crofton, 1950).

Meanwhile attempts had been made to extract chemical substances of microbial origin which would inhibit the growth or metabolic activities of bacteria, and such substances were called antibiotics by Waksman. Many so-called antibiotics have been recovered, but only a few are active chemotherapeutic agents, and these are derived from three main sources. Firstly from the higher fungi (Penicillia, Aspergilli) penicillin is the only substance produced which has any marked therapeutic efficacy, although, of course, it has no place in the treatment of tuberculous infections. The second source of antibiotics is a group of certain aerobic sporogenous bacilli but none are of any proven value because of their highly toxic effects on the kidney when given parenterally. It should, however, be noted in this connexion that *B. mesentericus* was used as an anti-tuberculous agent in 1912, though without any marked success. The third source is the more primitive group of fungi (Actinomycetes), and these have been found to yield three valuable antibiotics, streptomycin which was prepared in 1944, from *Streptomyces griseus*, chloromycetin which was formed from *Streptomyces venezuelæ* in 1947, and aureomycin which was prepared in 1948 from *Streptomyces aureofaciens*. Of these the only effective anti-tuberculous preparation is streptomycin, which was isolated by Schatz, Bugie and Waksman (1944), and initially reported upon by Feldman and his co-workers (1945).

In 1946, the use of another synthetic organic compound was reported but this time belonging to the aromatic group of substances (Lehmann, 1946a). It had already been shown by Bernheim that salicylates and benzoates can increase the oxygen consumption of tubercle bacilli, and it was concluded that they play an essential part in the intermediate cell metabolism of the organism, though it was not clear whether they acted as catalysers or metabolites. Lehmann showed that this effect of salicylates and benzoates is true only in the case of pathogenic tubercle bacilli. On this basis he investigated, by competitive enzyme inhibition, the inhibitory effects on the growth of tubercle bacilli of more than 50 derivatives of benzoic acid in order to find a substance

possessing bacteriostatic properties. The most active substance he found which could be given by mouth or parenterally and was only mildly toxic to man was para amino-salicylic acid (Lehmann, 1946b).

At about this time Domagk and his co-workers (1946) introduced the thiosemicarbazones as chemotherapeutic agents with tuberculostatic properties. The most active member of this group was TB1-698, which is sold commercially in the U.K. as thioparamizone. The drug has been used extensively in Germany, but experience elsewhere is very limited. Mertens and Bunge (1950) have published a summary of their clinical trials, showing that it has tuberculostatic properties both *in vitro* and *in vivo*, but its toxic effects, especially on the bone-marrow and liver, are by no means inconsiderable. Its use is still in the experimental stage and its general employment can certainly not yet be recommended.

Finally the most recent agent to undergo trials in England is a further sulphone derivative. "Sulphetrone" was first produced in the Wellcome Research Laboratories in 1936, and the initial report by Brownlee (1948) suggested that its acute toxic effects were slight but the chronic effects were more marked. Clinical trials, which were encouraging initially (Anderson and Strachan, 1948), are still progressing, but it has been suggested (Morlock and Livingstone, 1949) that the end-results do not show any appreciable advantages over other agents, and in the opinion of these authors it has no place in the treatment of pulmonary tuberculosis.

Full reviews of the historical background of the chemotherapy of tuberculosis have been made by D'Arcy Hart in his Mitchell Lectures (1946) and by Feldman in the Harben Lectures (1946), both of which will well repay further study of this fascinating subject.

DRUGS AVAILABLE

It is thus clear that the drugs which have found a place in clinical use may be considered under two headings :

(a) Those still under investigation, and whose general use should not yet be implemented, including Promanide, Diasone, Thiosemicarbazones, Sulphetrone.

(b) Those in general use, and whose clinical application can be recommended, including streptomycin and its followers: Para-amino-salicylic acid and its derivatives; Promizole.

Of the drugs available for general use the most active is streptomycin, and this may be given in combination with one or other of the remaining drugs. In actual practice the chemotherapy of tuberculosis usually only involves the use of streptomycin and P.A.S. either singly or in combination. Both of these drugs produce startlingly beneficial results in suitable cases of tuberculosis but they possess two very marked drawbacks, first of all the possibility of developing drug-resistant bacilli and secondly severe toxic effects may be produced by the agent itself.

DRUG RESISTANCE

Using streptomycin alone a high percentage of cases of pulmonary tuberculosis develop tubercle bacilli which become resistant to its action. These resistant organisms may emerge after only two or three weeks' treatment, but it is more common after about six or more weeks. This resistance when developed is usually a permanent and irreversible change.

It seems possible that resistant forms of bacilli arise by genetic changes, in the nature of a mutation, from streptomycin-sensitive organisms. In support of this is the undoubted fact that resistant organisms breed true, and also that an increase in the number of resistant bacteria in the presence of streptomycin occurs when the bacteria are in a medium which allows multiplication. A second factor allowing for the development of drug fastness is that in any bacterial population there is always a small proportion of organisms possessing an inborn drug insusceptibility. Thus, during the administration of the drug, the more sensitive organisms first of all cease multiplication because of the bacteriostatic effect, and secondly die off because of its bactericidal properties; and eventually the infection comes to be due more and more to drug-fast strains, which are resistant to both the bacteriostatic and bactericidal action of the antibiotic (Mitchison, 1950). The development of resistant strains must obviously, therefore, develop at a speed proportional to the rate of multiplication of the organisms.

But bacteria which have become streptomycin-resistant may become so in varying degrees, and this has led to the suggestion that there are a number of genetic forms of differing degrees of potency. A mutation in some genes will produce bacteria of low resistance, whilst a mutation in other genes will produce moderate or even very high degrees of resistance. It is considered that the low-potency genes are more numerous, and more likely therefore to produce by mutation bacteria with low degrees of streptomycin resistance, whilst only occasionally does a mutation occur in a high potency gene, producing highly resistant organisms. The obvious implication is that the larger the bacterial population the more rapidly it is multiplying, and the more suitable the medium for multiplication then the more likely it is that the rarer mutations to highly resistant forms will occur. It has also been shown (Crofton and Mitchison, 1948; Bignall *et al.*, 1950) that the earlier that resistant bacilli are found after commencing treatment, the more highly resistant they eventually become, attaining their final level of resistance fairly rapidly.

Further, evidence is accumulating to suggest that there is some correlation between clinical factors and the development of drug-fastness. It has been demonstrated in three different investigations (Mitchell, 1949; Howard *et al.*, 1949; Howlett *et al.*, 1949) that in cases showing radiological evidence of caseation and cavitation which have been treated with streptomycin, about 60 per cent develop resistance, whereas in non-cavitated tuberculous disease the resistance rate is only about 8 per cent when similarly treated. Bignall *et al.* (1950) have shown that the more confluent the radiological picture, the sooner can resistant forms of tubercle bacilli be expected to appear. These

workers have also shown that there is a suggestive correlation between the general severity of the infection and of the emergence of resistant forms. Often very ill patients produce bacilli with very high degrees of resistance, while those who are relatively well are less likely to do so. Thus cavitated and confluent tuberculous lesions, in the very ill patient, with severe systemic disturbances, are the more likely to produce resistant strains of *M. tuberculosis*.

It has also been shown that routine examination of the sputum in cases of pulmonary tuberculosis undergoing streptomycin therapy often reveals an initial fall in the degree of sputum positivity. If this initial fall does not occur, it is usually an indication that highly streptomycin-resistant bacilli will emerge, although the converse is not entirely true. After this initial drop in positivity, unless the patient becomes permanently sputum negative there is usually a later rise, and when this occurs it is found that streptomycin-resistant organisms have emerged (Crofton and Mitchison, 1948; Bignall *et al.*, 1950).

The dangers then are, that patients carrying streptomycin-resistant organisms may infect others and produce in them a streptomycin-resistant tuberculous process. Such cases have already occurred. Therefore in order to reduce the risk to a minimum, streptomycin should only be used when it is most clearly indicated. The second implication of the development of streptomycin-resistant tubercle bacilli is that any further response in the patient to additional doses of streptomycin may decline, and may even go on to produce absolute drug-fastness. Therefore it is imperative that the dosage of streptomycin should be adequate and suitable throughout treatment.

Concerning the development of drug fastness during treatment with P.A.S. alone, it was originally believed that resistance did not occur either *in vitro* or *in vivo*. However, Karlson *et al.* (1949) have shown that prolonged therapy does in fact produce P.A.S.-resistant organisms. This work has recently been confirmed in England but it would appear that P.A.S.-resistance rarely occurs in less than three months' treatment.

The significance of the development of P.A.S.-resistance is that when this occurs it may well prejudice the results of any combined course of therapy, using streptomycin.

When P.A.S. is given in conjunction with streptomycin in adequate doses, however, there is a marked reduction in the incidence of streptomycin-resistant strains, and no reports have been published so far of P.A.S.-resistant strains resulting from this therapy.

In a recent M.R.C. trial (1950) it is reported that in cases of acute bilateral exudative disease, treated by chemotherapeutic agents for three months, of those cases remaining sputum positive at the end of this period :

(1) 60 per cent were streptomycin-resistant when treated with streptomycin alone.

(2) A slightly smaller percentage were P.A.S.-resistant when treated with P.A.S. alone.

(3) 10 per cent were streptomycin-resistant when treated with streptomycin and P.A.S. in conjunction, but that no cases of P.A.S.-resistance were traced

in this series of cases undergoing treatment with the combined therapeutic course.

The development of streptomycin-resistant organisms in genito-urinary tuberculosis also occurs in a high proportion of cases, unless the urine is cleared permanently of tubercle bacilli. Therefore it is important that the whole of the urinary tract should be fully investigated, and the use of chemotherapeutic drugs should only be part of a planned attack on the disease.

In miliary and meningeal tuberculosis the development of resistant bacilli occurs much less frequently.

TOXIC EFFECTS

The second main disadvantage to the use of streptomycin is its toxic effects, particularly on the vestibular apparatus. This is more likely to occur the bigger the dose, and the more prolonged the course. The main symptoms are vertigo, tinnitus, and deafness, which usually come on after about three to seven weeks' treatment. If the treatment is stopped at once improvement will take place and the symptoms will usually disappear completely within two to three months, but if they come on after a large total dosage, or if the treatment is prolonged after the onset of the toxic symptoms, the vestibular damage may become permanent, though some degree of improvement is possible during the succeeding two years. For these cases it is important that their after-care is properly controlled. The giddiness from which they suffer is compensated for, and adjusted by, visual control. Therefore they should not be left unattended in the dark without adequate support, nor should they be allowed to drive motor cars, or cross roads busy with traffic, since under these circumstances their visual control may be lost, and they may suffer from severe though temporary giddiness, or vertigo, with perhaps disastrous results.

Other toxic effects include scarlatiniform rashes which may come on within a few days of starting treatment, or urticarial eruptions or other histamine-like effects which often commence within the first few weeks. These are usually controlled by anti-histamine drugs, and it is frequently unnecessary to discontinue the treatment. Rarely true exfoliative dermatitis or severe pyrexial reactions may occur, and these will usually necessitate termination of treatment. Quite often the injection itself will produce local pain, redness or swelling, or there may be anorexia, nausea or vomiting, but these are rarely severe enough to justify stopping the treatment, and are effectively controlled by the anti-histamine drugs. Eosinophilia may occur but it is unimportant. Streptomycin is excreted in the urine and if the urinary concentration is very high, in the order of 1,000 microgrammes per litre, a positive urinary Benedict's test may be obtained, due to streptomycin acting as a reducing agent.

The toxic effects of P.A.S. are very common though remarkably slight and usually consist of anorexia, nausea, vomiting, or diarrhoea, particularly at the start of treatment. These effects can often, however, be reduced if the drug is taken after a meal, or if it is preceded by an alkaline mixture. Drug

sensitivity reactions may occur with the production of a mild fever, skin rashes or localized pains, but these will often respond to anti-histamine drugs, or by cutting the dose to about one-tenth and then giving it in gradually increasing daily doses. Occasionally hæmaturia or albuminuria may occur, and in this eventuality the urine should be alkalinized before continuing the drug (Nagley and Logg, 1949). Hypoprothrombinæmia has been reported (Swanson, 1949) but it is probably of no clinical significance. In 30 consecutive cases of pulmonary tuberculosis undergoing P.A.S. therapy in the Connaught Hospital, all of whose prothrombin times were estimated, not one case of significant hypoprothrombinæmia was noted. No toxic effects have been reported on the blood, but like streptomycin P.A.S. is excreted in the urine and this may also have a reducing effect on Benedict's solution.

Nurses handling streptomycin may become sensitive, and after some weeks or months they may develop sensitization rashes on the hands, flexures of the arms and around the eyes. It is therefore necessary that before the vials of streptomycin are opened, the handlers should wear rubber gloves until the whole operation of opening the containers, mixing the solution, and giving the dose is completed, and the syringes washed and the containers disposed of. Then the gloved hands should be thoroughly rinsed under running water, and after removing the gloves the hands themselves should be well scrubbed.

RATIONALE OF CHEMOTHERAPY

The first consideration for chemotherapy in tuberculosis is the proper selection of cases for which chemotherapy is suitable and indicated.

Secondly the giving of chemotherapeutic agents should not be counted an end in themselves, but should be considered as part of a planned course of treatment. They should not be expected to produce a lasting cure, but should be used in selected cases with the intention of achieving sufficient improvement to permit of the induction of collapse therapy or major chest surgery. The drugs must be continued until this objective is attained, be this weeks or months, and the collapse measures should be instituted at the most opportune moment while the patient is still under the protection of the drug, that is actually under treatment or immediately following completion of a course of treatment. Under no circumstances should a course of chemotherapy be terminated, and the patient left with unclosed cavities, for relapse is almost certain within a short time. Similarly chemotherapy should never be used as a temporizing measure, but only as part of a planned programme designed to arrest or cure the disease.

Thirdly they must be exhibited with a watchful alertness to the prevention of the development of resistant strains. This may be achieved by giving streptomycin intermittently or by giving it in combination with other drugs. In a study of 560 cases treated at the Fitzsimmons General Hospital, Denver, the report published by the Veterans Administration (1950) showed that when 1 gramme streptomycin is given daily for three months about 70 per cent of cases develop streptomycin resistance. When streptomycin is given in 1

gramme doses every three days, the resistance rate falls to 33 per cent, but when P.A.S. is given daily, in addition to streptomycin every third day, then no cases of resistance were reported after 120 days' treatment.

Fourthly the doses of streptomycin should be adequate in amount throughout treatment for the type of disease being treated. In those cases which are likely to produce resistant organisms quickly, the size of the dose must be effective from the very beginning of treatment. The object therefore should be to commence treatment at the earliest possible moment, while the number of innately resistant bacilli is still minimal, and to eradicate the infection as promptly as possible.

Fifthly due attention must be paid to the prevention, treatment and after-care of any toxic effects which may arise from the drugs themselves.

Finally a recent M.R.C. investigation (1950) into the treatment of pulmonary tuberculosis with streptomycin and P.A.S. provides information on the relative values of these two drugs. The trials investigated the results of chemotherapy in comparable groups of cases with acute progressive bilateral pulmonary tuberculosis. One group was treated with P.A.S. 20 grammes daily only, a second group was treated with streptomycin 1 gramme daily only, a third group was given streptomycin and P.A.S. in combination, and a group of cases treated on bed rest only, in a previous similar investigation, was used as a control. Treatment was carried out for three months and observations were made for a further three months. The results of this investigation show that with P.A.S. alone far better results are seen than in the control group treated on bed rest alone, and this confirms earlier reports from Swedish authorities. Clinical improvement, when it takes place, occurs rapidly with a fall of temperature, reduction of E.S.R. and gain in weight though the radiological improvement was less impressive in its degree.

It was observed that P.A.S. alone, although producing better results than bed rest, was not as effective as streptomycin by itself. Comparing these two groups, more P.A.S. cases showed unchanging radiological appearances during six months' observation and fewer P.A.S. cases became sputum negative, while the rate of clinical improvement was less marked and occurred later whilst on P.A.S. only. Streptomycin alone thus produced considerably better all-round results than P.A.S. by itself.

Combined streptomycin and P.A.S. therapy showed somewhat more definite evidence of clinical and radiological improvement as compared with the cases only on streptomycin. About 30 per cent of the cases in the combined treatment group undergo sputum conversion in the first three months, compared to a maximum of 19 per cent in six months in the streptomycin only group. In those cases still remaining sputum positive a maximum of 9 per cent in the fifth month develop streptomycin-resistance in the combined treatment group, as compared to 70 per cent by the fourth month in the streptomycin-only cases.

P.A.S. resistance was observed in cases on P.A.S. only, but although accurate estimations are not available, it would appear that the development of P.A.S.-

resistance whilst on P.A.S. alone occurs only less frequently than the development of streptomycin-resistance whilst on streptomycin alone. It was considered, however, that no significant difference in prognosis could be ascertained between the patients from whom P.A.S.-resistant strains were isolated, and the others. On the combined course of treatment no cases of P.A.S.-resistance were found. Finally it was considered that :

(1) P.A.S. alone has a place in the treatment of cases which show apparently complete streptomycin-resistance, and P.A.S. appears to be the only chemotherapeutic agent in general use at present for streptomycin-resistant cases.

(2) That when streptomycin is required to be given, it should always be exhibited in conjunction with P.A.S.

(3) The greatest advantage obtained from combined therapy was the considerable delay in the emergence of streptomycin-resistant organisms, which allows effective administration of streptomycin possible for much longer periods than previously, and may even permit of repeated effective courses.

A warning is sounded that neither P.A.S. nor streptomycin are without toxic effects, and that the development of streptomycin-resistance is not completely prevented by combined therapy, although drug resistance should not be overstressed as a factor in prognosis.

INDICATIONS FOR CHEMOTHERAPY

The selection of cases suitable for chemotherapy calls for special skill and experience in choosing the type of case wisely, adjusting the dose correctly, and planning fully an adequate course of treatment, utilizing other therapeutic procedures at the opportune times.

The indications for chemotherapy in the light of our present knowledge can be summarized as follows:

(1) *Absolute Indications*.—(a) Tuberculous Meningitis : With chemotherapy the survival rate in special centres is now about 40–50 per cent after six months' treatment or longer.

(b) Acute Miliary Tuberculosis : After six months' treatment recovery can be expected in about 50 per cent of cases, but the possibility of the development of tuberculous meningitis should be constantly borne in mind.

(c) Pulmonary Tuberculosis of the Following Forms : (i) Pneumonic phthisis. Chemotherapy for three months or longer is often a life-saving measure in these cases, and with the judicious use of a pneumothorax can often render some of them suitable for major collapse measures. (ii) Acute bronchogenic or hæmatogenous pulmonary spread. In the acute extensive spreads chemotherapy should be instituted at once, since many of these lesions show a propensity to cavitate early and it is necessary to commence chemotherapy before this occurs, in order to be able to utilize collapse measures in the future, to the best advantage.

(2) *Relative Indications*.—(a) Pulmonary Tuberculosis : (i) Recent pro-

gressive exudative disease without much cavitation, with the intention of achieving sufficient improvement to allow the induction of suitable collapse measures. (ii) Tuberculous disease of the respiratory tract including the mouth, pharynx, larynx, trachea, and bronchi, especially in recent acute laryngeal or endobronchial lesions with slight parenchymal disease. (iii) Tuberculous empyema of recent origin, with or without sinus formation. Although the results to date are disappointing, yet when given intrapleurally as well as parenterally it almost certainly has a place in preparing such cases for major surgery. (iv) As an "umbrella" in major thoracic surgery for pulmonary tuberculosis especially pulmonary resection, with a view to reducing the incidence of post-operative spreads, and of tuberculous empyema.

(b) *Extrapulmonary Tuberculosis*: (i) Renal and genito-urinary tuberculosis, particularly of the bladder, as part of a planned course of treatment, involving surgical resection, convalescence, and a sanatorium regime. (ii) Severe tuberculous adenitis, especially if the glands have broken down and surgical treatment is contemplated. P.A.S. instillation following aspiration is particularly useful for tuberculous abscess formation from caseous glands. (iii) Cutaneous tuberculous lesions often show considerable benefit from chemotherapy, especially when used in combination with calciferol.

(3) *Doubtful Indications*.—(a) *Tuberculosis of Bones and Joints*: Although commonly used in these conditions the place of chemotherapy is still uncertain, though its value probably lies in making certain cases fit for operation.

(b) *Tuberculous Peritonitis and Enteritis*: It is difficult to assess the results of chemotherapy in these conditions owing to their tendency to spontaneous healing, but streptomycin is probably of some value.

(c) *Primary Tuberculosis*, by itself, is no indication for chemotherapy, which is useless in this condition, and there is no evidence that it has any effect whatsoever on the disease.

CLINICAL APPLICATION

There are three main ways in which chemotherapy may be employed in the treatment of tuberculous conditions.

Firstly it may be employed during domiciliary treatment of cases awaiting a sanatorium vacancy for the induction of collapse measures. A recent M.R.C. investigation (1948) into the effect of four months' treatment with 1 gramme daily of streptomycin on acute bilateral bronchopneumonic disease showed that considerable improvement occurred after three months, but compared with the control cases there was very little difference between them after an interval of twelve months. Thus streptomycin can be expected to produce relatively quick results by slowing down and arresting the progress of acute exudative disease and even producing considerable resolution of the lesions with marked clinical improvement. This improvement is usually most marked after about two months' therapy. These results have been confirmed in the latest M.R.C. investigation (1950). Therefore it is necessary that arrangements should be made to carry out some surgical procedure after two to three months'

treatment with chemotherapy in order to consolidate the progress already obtained and to lead to stability and healing. Streptomycin used in this way will render a case fit for collapse measures much more quickly than could be attained by prolonged bed rest only, and thus the main benefit is to be found in the considerable shortening of the waiting period before the induction of the collapse measures. Again, streptomycin may act to advantage in a case of slowly progressive exudative disease in a person with little resistance by producing a short period of quiescence which may allow with relative safety the inception of collapse measures, which will tilt the scales in the patient's favour and lead to progressive improvement and recovery. And thirdly it may well be that on completion of a course of chemotherapy a much less drastic surgical programme will be required than was originally contemplated.

Secondly chemotherapy should only be used as part of a planned course of treatment whether it be carried out at home, or in an institution. In unilateral disease it may be used with the intention of reducing the waiting time before an A.P. can be safely attempted. Similarly in extensive bilateral disease it may be used, first of all to arrest the progress of the lesion, then to produce a short period of quiescence sufficient to allow the induction of a P.P. or even an A.P., and then later on to allow a major surgical procedure to be carried out on one side with an A.P. on the other. It may also be used in those cases with acute hæmatogenous or bronchogenic spreads with the intention of controlling or arresting the spread and allowing the case to be dealt with by collapse measures using standard indications. It is particularly of value in the planned course of treatment for tracheo-bronchial disease. A recent investigation into the streptomycin treatment of tracheo-bronchitis revealed two interesting facts. Firstly that some cases which by reason of bronchial disease would be considered unsuitable for collapse measures, may be made suitable by clearing the bronchial obstruction initially with streptomycin. And secondly the use of streptomycin much more certainly controls the activity of endo-bronchial disease and this has led to a great reduction in the incidence of bronchopleural fistula following resection, together with the reduction of morbidity and mortality following resection procedure. In tuberculous pyopneumothorax or tuberculous empyema in which all secondary infections have been controlled and eliminated by penicillin, etc., streptomycin both intramuscularly and intrapleurally plays a very considerable part in rendering these very ill patients fit for major surgery.

Finally chemotherapy may be used as an adjuvant or as a precursor to major surgery (Mullard, 1950). It is generally believed that the best cases for thoracoplasty are those in good general condition with chronic upper lobe cavitated disease which has shown no fundamental change for some months. This type of case is unaffected by chemotherapy, but experience with streptomycin suggests that many of the so-called second-best cases, in which the disease is unstable, or was recently acute and progressive, can be readily and quickly prepared for thoracoplasty, and made much more suitable for major surgery with relatively little risk by a preliminary course of chemotherapy

which should, however, be continued through the post-operative period. After a course of chemotherapy in preparation for major surgery, it often occurs that much less formidable procedures may be required than were originally contemplated.

The place of chemotherapy as "cover" during thoracic surgery is still awaiting final adjudication. An M.R.C. investigation on this problem in relation to thoracoplasty suggests that streptomycin does not in fact reduce the incidence of post-operative spreads or reactivation (Mullard, 1950). But it is quite effective in dealing with them when they occur. The effect of this has been to rely on the beneficial effects of thoracoplasty in allowing minimal contralateral non-cavitated infiltrations to harden and heal, once the main focus of the disease is controlled, or to rely upon streptomycin to control the contralateral disease should it show signs of activity during the course of major chest surgery, rather than induce a controlling A.P. prior to operation. The avoidance of a contralateral pneumothorax with the intention of preserving as much functioning lung tissue as possible is of course desirable, especially when one considers how much loss of pulmonary function may occur due to pleural fusion and obliteration as a result of maintenance of an A.P. for any length of time.

During resections, however, there is little doubt that chemotherapy plays a very useful part when used as an "Umbrella," during and after operation. With streptomycin cover complications following lobectomy such as post-operative spreads, bronchial fistulæ, and tuberculous empyema have been very appreciably reduced, so that the main hazards attendant upon pulmonary resections have been largely removed, and this may allow of segmental resections instead of lobectomies. This is particularly noted in relation to the development of bronchopleural fistula following resection in tracheo-bronchial disease. It is interesting to note in this connexion that the efficacy of streptomycin when used as a cover for resection procedures seems to be unaffected by the presence of resistant strains. Tuberculous sinuses may be successfully treated by local daily injections of 20 per cent P.A.S. solution, after any secondary infection had been eradicated.

ADMINISTRATION AND DOSAGE

Streptomycin was supplied originally as either a sulphate or a hydrochloride preparation. But these were found to contain a number of impurities, and now a much more purified double salt compound has been prepared which is the trihydrochloride-calcium chloride complex of streptomycin. This is readily soluble in water, remarkably free of impurities and is very stable, retaining its potency in powder form in sealed ampoules at room temperatures (85° F.) for many months, and in solution remains potent for several weeks if stored in a refrigerator.

Dihydrostreptomycin is a synthetic preparation obtained from the catalytic reduction of streptomycin in the presence of hydrogen. Like the parent substance it is capable of forming salts of which the sulphate and the hydro-

chloride are the commonest. It is undoubtedly less toxic on the vestibular apparatus than streptomycin but deafness appears to be slightly more common as the result of its use. Its lesser toxicity is, however, offset by its somewhat lesser therapeutic effectiveness, and the emergence of resistant bacilli are just as liable to occur as with streptomycin. Its use is therefore mainly confined to cases developing severe toxic reactions with streptomycin.

The adult dose of either of these drugs is 1 gramme daily which is now usually given in one daily intramuscular injection in 2–5 c.c. of sterile distilled water or normal saline. Phosphate buffers should never be used with the calcium chloride complex since precipitation will occur, nor should physiological salines containing calcium salts be used with dihydrostreptomycin sulphate for the same reason. Severe local pain due to the injection may be reduced by using 0.5 per cent procaine solution as the solvent. It should be noted that the technique of using less frequent injections or interrupted courses of treatment are likely to reduce appreciably the incidence of toxic manifestations.

In severe cases of pulmonary tuberculosis, genito-urinary tuberculosis, tuberculous meningitis and miliary tuberculosis the dose should be increased to 2 grammes daily given in two equally spaced doses. For children the dose should be 0.02 gramme per pound body-weight per day.

Para-aminosalicylic acid is generally supplied as the sodium salt which is given by mouth as a 20 per cent solution in tap-water. It has an unpleasant bitter taste which may be disguised by the addition of flavouring agents such as peppermint water, fruit syrups, liquid extract of liquorice, or chloroform water. But none of these are really satisfactory and many patients prefer the unflavoured solution. The usual dose in England is 5 grammes given three or four times daily, for six days in each week, but in America about half this dose is often given. For children, the dose can be calculated according to the usual formulæ, or a daily dose of 0.25 gramme per kilo body-weight may be prescribed. For intrapleural injections a sterile 20 per cent solution is used, injecting about 20 ml. once a week. A similar solution may be used for tuberculous abscesses, using 1–3 ml. after weekly aspiration of the abscess and continued until pus formation ceases and the abscess becomes sterile.

In actual practice, however, when it is decided to use streptomycin in a suitable case, the opportune moment having arrived, and a suitable course of treatment designed, a course of chemotherapy to last six weeks to three months should be planned, using streptomycin 1 gramme daily in one intramuscular injection, and P.A.S. 15 to 20 grammes daily in four equally spaced doses for six days only in each week. von Leitner and Masson (1950) are of the opinion, after a considerable experience of P.A.S. therapy, that P.A.S. is useful not only in relatively favourable cases, but indeed should form the basic treatment in the more severe types of lesion. Further, they consider that streptomycin should be used mainly in a crisis situation, such as for an acute exacerbation or in preparation for operation, and that the mainstay of chemotherapy of the usual case should be with P.A.S. Therefore in less doubtful cases, where the indications for streptomycin are perhaps equivocal, but chemotherapy is

considered to be necessary, P.A.S. alone should be given in four daily doses of 5 grammes each.

SUMMARY

(1) A brief outline is given of the historical development of chemotherapeutic agents in the treatment of pulmonary tuberculosis.

(2) The drugs now available are enumerated and the disadvantages of streptomycin and para-amino salicylic acid are discussed in detail. These are mainly concerned with drug resistance and toxicity.

(3) The rationale of chemotherapy is noted and the indications for the exhibition of these drugs is discussed.

(4) A scheme of dosage and the clinical application of chemotherapy is suggested. It is emphasized that streptomycin should never be used alone, but always in conjunction with P.A.S.

(5) It is stressed that chemotherapy is not an end in itself, but only one part of a planned course of treatment, in which the use of chemotherapeutic agents must be integrated with the use of suitable collapse measures.

ACKNOWLEDGMENT

I should like to express my thanks to the Director-General Army Medical Services for permission to publish this article and also to Major-General J. Bennet, the late Director of Medicine, and to Dr. G. S. Todd, Consulting Tuberculosis Physician to the Army, for their encouragement and stimulation.

REFERENCES

- ANDERSON, T., and STRACHAN, S. J. (1948) *Lancet*, **2**, 135.
 BIGNALL, J. R., CLEGG, J. W., CROFTON, J. W., SMITH, B. J. D., HOLT, H. D., ARMITAGE, P., and MITCHISON, D. A. (1950) *Brit. Med. J.*, **2**, 1224.
 BROWNLEE, G. (1948) *Lancet*, **2**, 131.
 CROFTON, J. W., and MITCHISON, D. A. (1948) *Brit. Med. J.*, **2**, 1009.
 CROFTON, J. (1950) *Prac.*, **165**, 233.
 DOMAGK, G., BEHNISCH, R., MIETZSCHE, F., and SCHMIDT, H. (1946) *Naturwissenschaften*, **33**, 315.
 ELLMAN, P., LAWRENCE, J. S., and CUMMINGS, J. N. (1941) *Tubercle*, **22**, 296.
 FELDMAN, W. H., HINSHAW, H. C., and MOSES, H. E. (1942) *Amer. Rev. Tuberc.*, **45**, 303.
 ———, ———, and MANN, F. C. (1944) *Amer. Rev. Tuberc.*, **50**, 418.
 ———, ———, ——— (1945) *Amer. Rev. Tuberc.*, **52**, 269.
 ——— (1946) *J. State Med.*, **9**, 267, 297 and 343.
 HART, P. D. A. (1946) *Brit. Med. J.*, **2**, 805 and 849.
 HEAF, F. G. R., HURFORD, J. V., EISER, A., and FRANKLIN, L. M. (1943) *Lancet*, **1**, 702.
 HOWARD, W. L., MARSH, F., MUELLER, E., YANNITELLI, S. A., and WOODRUFF, C. E. (1949) *Amer. Rev. Tuberc.*, **59**, 391.
 HOWLETT, K. S., Jr., O'CONNOR, J. B., SADUSK, J. F., SWIFT, W. E., Jr., and BEARDSLEY, F. A. (1949) *Amer. Rev. Tuberc.*, **59**, 402.
 KARLSON, A. G., DELAUDE, A. M., FELDMAN, W. H., and CARR, D. T. (1949) *Proc. Mayo Clin.*, **24**, 544.
 LEHMANN, J. (1946a) *Lancet*, **1**, 14.
 ——— (1946b) *Lancet*, **1**, 15.
 LEITNER, C. VON, and MASSON, R. (1950) *Schweitz. Med. Wschr.*, **80**, 375.

- Medical Research Council Investigation (1948) *Brit. Med. J.*, **2**, 769.
- (1950) *Brit. Med. J.*, **2**, 1073.
- MERTENS, A., and BUNGE, R. (1950) *Amer. Rev. Tuberc.*, **61**, 20.
- MITCHELL, R. S. (1949) *New Eng. J. Med.*, **241**, 450.
- MITCHISON, D. A. (1950) *Thorax*, **5**, 144.
- MORLOCK, H. V., and LIVINGSTONE, R. (1949) *Lancet*, **2**, 1170.
- MULLARD, K. S. (1950) *Tubercle*, **31**, 236.
- NAGLEY, M. M., and LOGG, M. H. (1949) *Lancet*, **1**, 913.
- PETTER, C. K., and PRENZLAU, W. S. (1944) *Amer. Rev. Tuberc.*, **49**, 308.
- RICH, A. R., and FOLLIS, R. H., Jr. (1938) *Bull. Johns Hopk. Hosp.*, **62**, 77.
- SCHATZ, A., BUGIE, E., and WAKSMAN, S. A. (1944) *Proc. Soc. exp. Biol. N.Y.*, **55**, 66.
- SWANSON, J. N. (1949) *Lancet*, **2**, 175.
- TYTLER, W. H., and LAPP, A. D. (1942) *Brit. Med. J.*, **2**, 748.
- Veterans Administration, Washington (1950) Transactions of the 9th Streptomycin Conference.
-

FIELD TRAINING : EXERCISE — HEReward

BY

Major-General K. A. M. TOMORY, *C.B., O.B.E., K.H.P.,
D.D.M.S., Eastern Command*

INTRODUCTION

THIS Exercise was held in the Stanford Practical Training Area of Eastern Command from October 27–November 2, 1950. This Practical Training Area is an area in Norfolk held by the Army for practical training and is used for live shell, mortar and small arms firing.

A few villages have been evacuated in the area and houses have been used over the last two years as gun targets and for obstacles in street fighting. The whole area, especially on a wet day in late October, gives one an unforgettable impression of a battlefield in France or Germany but without the corpses of the killed whether human or animal.

This Exercise was the first in this country since the war in which a semblance of a Division took part.

Troops Involved.—Weak Division of two weak Brigades and one Brigade represented in skeleton. Div. H.Q. was in strength. Bdes. approx. half-strength in Infantry, R.A., R.E., R.A.C. and Services.

The Army Commander directed the Exercise. He used a small H.Q. including the Heads of Services to represent the Corps H.Q. under which the Division was operating.

The Exercise was controlled in order that the main aims set by the Director could be achieved.

R.A.F. Vampire planes took part and made many attacks on positions in order to show the need for concealment.

PRECIS OF THE GENERAL IDEA

ANGLIA, an Island power is being threatened by LILLIPUT, a large Fantasiaan power.

The Anglian Forces, having been neglected, are small though fighting efficiency is high. Lilliput on the other hand has a great superiority in air, tanks, guns and men.

The Anglia C. in C.'s plan, in brief, was to defend a line from King's Lynn to Lowestoft passing through Stanford.

The Stanford sector is the weakest natural part of the line. It is also the part where the C. in C. Anglia intends to defeat the enemy main attack.

For political reasons no development of the defences was possible during peace but Commanders had some opportunity of studying the ground.

As was fully expected Lilliput forces landed in strength near Great Yarmouth on October 14, 1950, and made a Bridge-head.

1 and 2 Anglia Armies are taking up positions at the defence line and the Division we are concerned with is digging in at its allotted part of the line from October 28, 1950.

NOTES.—The gun areas on the trace are shown as they were on the ground, some of these are not tactically correct, but were sited so that they could dig in properly.

Two A.D.S.s are shown, both of these were open for training. In actual battle one of these could have been closed.

The F.D.S. is not shown on the trace. It was open in the Div. Adm. area in FORNHAM PARK about 10 miles to the south.

THE NARRATIVE

Opening Situation

(1) When the Exercise began at 1800 hours November 28, the invading enemy forces were being held by our mechanized covering forces on a general line running N.W.-S.E. through NORWICH some 20 miles from the Division which was concentrating in the STANFORD area.

Occupation of the Position

(2) On the night October 28/29 the Division moved into position under cover of darkness.

It spent the remainder of that night and the two following nights preparing its position. It worked chiefly at night and was harassed by saboteurs, agents and the guerrilla activities of small bodies of enemy parachutists. By day it was subject to incessant enemy air reconnaissance, and enemy air attacks which gradually increased in intensity.

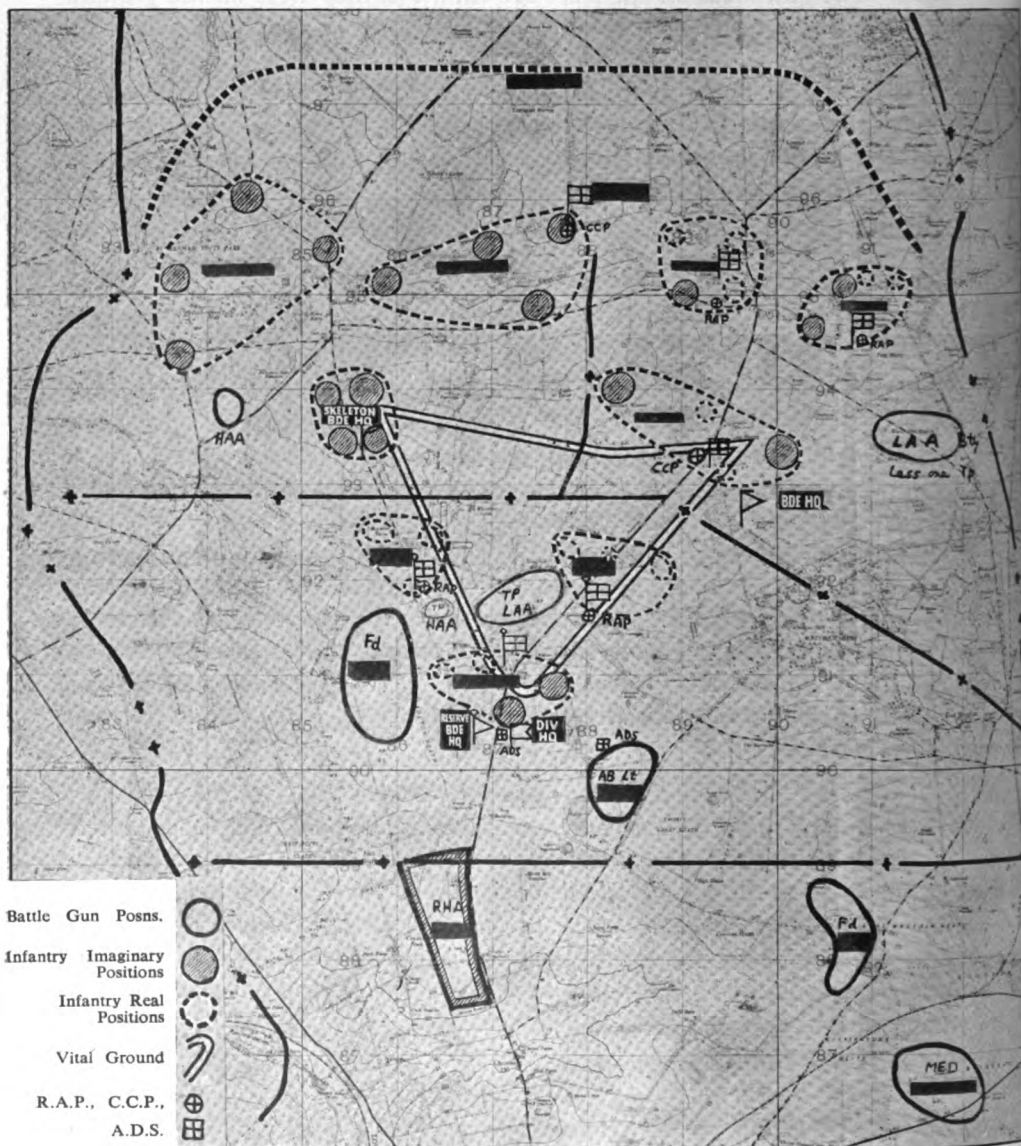
On October 30 counter-attacks were rehearsed down to the level of troop and platoon commanders.

Actions of the Division's Screen

(3) On the night 30/31 the Division screen took up its position a few hundred yards in front of the F.D.L.s. Next night our mechanized forces withdrew through our main position. At 0130 hours, November 1, a regimental group withdrew through the Division on the STANFORD road. Its armoured car rear party was intercepted by the enemy and had to be diverted by the Division through TOTTINGTON. By 0800 hours next day (November 1), the screen was in contact with the enemy and four hours later it was forced to withdraw through TOTTINGTON.

Enemy Attack

(4) From 1200 hours, November 1, the enemy patrol activity increased along the whole front with particular reference to the wooded areas on the flanks, where road blocks were established in rear of the forward battalions. To dislodge them counter-attacks by right forward battalion were carried out. By nightfall the situation had been restored in the Division's area but not in the areas of the Division on its right.



Brigade Dispositions: Exercise Hereward.

At 0100 hours, November 2, the main enemy attack was made against the junction point of the two forward brigades of the Division. It made good progress and by 0320 hours had captured the vital ground at EAGLE TOWER and POLE PLANTATION which had been held by a company of the reserve Bn.

At the same time the enemy made a subsidiary thrust against the right flank of the right forward Bgde.'s left Bn., the Battalion holding TOTTINGTON. By 0300 hours it had cleared the road as far as some 500 yards SOUTH of it. It then unsuccessfully tried to widen the area of its break through.

Counter-attack Phase

(5) At about 0300 hours, November 2, the reserve battalion of the right forward brigade and up until then holding the vital ground at LINGHEATH, was ordered to counter-attack for TOTTINGTON. Later the order was countermanded and the reserve battalion returned to its original position without having encountered the enemy.

(6) At 0515 hours, November 2, a divisional counter-attack took place. "A" Bn. of the reserve Bde. delivered its rehearsed counter-attack in the dark against EAGLE TOWER and POLE PLANTATION. The attack made good progress until its supporting barrage ended short of its objective: it was then held up by heavy enemy artillery fire.

(7) "B" Bn. was then moved up behind the pivot position on LINGHEATH. At 0800 hours supported by one Regt. of Tks. and "A" Bn., it then attacked westwards and by 0920 hours had captured both EAGLE TOWER and POLE PLANTATION and had also forced the enemy to withdraw in disorder. It then advanced on TOTTINGTON and restored the situation there. Ground mist had prevented the intervention of the enemy fighters, which were over the battle-field throughout this last phase.

The Exercise then ended.

ARMY COMMANDER'S "SUMMING-UP"

EXERCISE HEREWARD

The Aim of the Exercise.

- (1) The aim of the Exercise was to practise:
 - (a) The occupation of a defensive position, the concealment and camouflage of the defences, and the deception measures taken by an Infantry Division and its supporting arms under enemy air observation and harassing attacks.
 - (b) The launching of counter-attacks against a controlled enemy.

Tasks of the Division.

(2) The Division on an improvised establishment, and with one Brigade Group represented in skeleton, was given the tasks of:

- (a) Occupying and preparing a defensive position facing NORTH and stretching from STANFORD MILL to incl. THOMPSONS WATER whilst

imaginary armoured troupes held the superior enemy forces on a line running N.W.-S.E. of NORWICH, some twenty miles away.

Three nights were allotted for this task, the armoured covering troops withdrawing through the Division on the fourth night, October 31/November 1.

- (b) Making safe provision for the return of the armoured covering forces over the bridge at STANFORD and through TOTTINGTON.
- (c) To destroy any enemy penetration between STANFORD MILL and THOMPSONS WATER.

The Division Outline Plan.

- (3) In the Divisional Plan it was laid down that:
 - (a) The vital ground was, incl. STANFORD WARREN—Ring Counter 175--LINGHEATH and, in rear, FROG HILL.
 - (b) The F.D.L.s were to be some 500 yards NORTH of the wood and stream obstacle as shown on map "P."
 - (c) While forward Brigades would counter-attack to recover forward Bn. positions up to F.D.L.s, the reserve Brigade would counter-attack only for the vital ground and as far forward as the obstacle.
- (4) The Plan was, in more detail:
 - (a) To hold the position with two Brigades forward and one in reserve.

LEFT	...	...	(in skeleton)
RIGHT	...	...	(1½ strength)
RESERVE	...	...	(½ strength)
 - (b) To deceive the enemy as to the strength of the position and to make him think that positions were strong where they were weak and vice versa.
 - (c) To cover this position and to assist the safe withdrawal of the covering troops, a screen was sited in position a few hundred yards in front of F.D.L.s. This screen was ordered to:
 - (i) Cover the withdrawal of the ANGLIAN mech. forces and stop enemy interfering with ANGLIAN mech. forces crossing the STANFORD-TOTTINGTON obstacle.

Concealment.

Camouflage nets must:

- (a) Blend with their background. (H.Q. "X" Bde. which was otherwise admirably concealed, was given away by a camouflage net covering a crossing over a ride in the wood.)
- (b) Not to be draped like shrouds over vehicles.
- (c) Be used before defensive works are begun and not afterwards. (H.Q. "Y" Bde., the vehicles of which were dug in using engineer plant under trees, was detected from the air because camouflage nets were not put up until the digging had been completed.)

Passive Defence.

Air defence discipline was only fair and deteriorated during the long "alerts."

This was partly due to unnecessary fatigue caused by:

- (a) Air sentries not distinguishing between their own air O.P.s and enemy aircraft.
- (b) Alerts being sounded whenever an aircraft was in sight, and without reference to its position and the direction in which it was travelling.
- (c) No distinction being made in unit orders between the action required of troops under cover of thick trees and the action of troops in the open.

Protection Against Infiltration and Sabotage.

Various cases of infiltration and sabotage drew attention to the fact that all troops must be armed. Headquarters, road blocks, barriers, etc., must have adequate protection and alarm schemes. Comds., convoys, and officers must have escorts, and runners, etc., must not move about alone. Gun areas must also have adequate protection which may mean sitting in Inf. localities.

The Div. adm. area was within a park wall which gave the false impression that it normally might have a clearly defined perimeter. In close country such as England, the Div. Adm. area will describe a region occupied by Divisional Administrative Units. It will normally be about 5 miles \times 5 miles instead of $1 \times \frac{1}{2}$ as FORNHAM PARK.

It will be impossible to prevent the perimeter being penetrated by enemy saboteurs, but each unit in its own area must be responsible for its own protection. Its own key vehicles must be securely located in the centre. Division should appoint an officer to co-ordinate the defences, to seal the main road approaches, supply and information service, and to ensure that a satisfactory standard is maintained by all.

This officer should not have any other task to do.

- (ii) To stop minor enemy attacks getting through the screen and to inflict the maximum casualties on the enemy.
- (iii) To maint. contact on their front as long as possible, but where it was clear that the enemy was about to launch a major attack, to withdraw across the obstacle inflicting as many cas. as possible. It was vital that they did not suffer heavy casualties.

(d) It was composed as under:

(i) Under cmd.:

One Regt. of tanks (less one Sqn.).
Three Coys. of Infantry.
One C.C.P. of "A" Field Ambulance.
One Rec. P.

Deception.

This was the first time on which planned tactical deception implemented by a section of R Force has been used in an exercise with troops in the U.K. The following points arose:

- (a) The object should not have been just to deceive the enemy: it should also to have been to make him react in a way favourable to the operational plan.
- (b) Once the object has been laid down, the method of achieving it should have been left to the R Force representative to work out and to present it to the Force Comd. for approval. In this exercise the R Force representative was NOT asked to make a plan but was presented with one to carry out.
- (c) The full details of the deception plan should not have been included in the operation order but should have been dealt with separately.
- (d) It was laid down in Div. O.O. that the C.R.E. would co-ordinate the deception plan. This should have been the task of the R Force Commander. He is the expert in all forms of deception.

Occupation of the Position.

In general, the occupation of the position was well done. Certain points on traffic control, however, occurred on this and other occasions. Points to note are:

- (a) On narrow roads to try to pass vehicle columns, through marching troops at night leads to confusion and delay.
- (b) Complicated plans involving columns crossing at night must be avoided.
- (c) All drivers must be told their destinations before movement begins.
- (d) Pro must be told locations of Recovery Points and of all units in the Division.

THE WORK OF THE MEDICAL UNITS

Medical Units.

Two Field Ambulances and one F.D.S. took part.

<i>Strength</i>		<i>Officers</i>		<i>O.R.s</i>	<i>Vehicles</i>	
"A" Field Ambulance	... ..	8	...	114	...	20
"B" Field Ambulance	... ..	5	...	87	...	30
F.D.S.	... ..	5	...	30	...	9

"A" Field Ambulance was a scratch unit made up of T.A. personnel from 162 Field Ambulance T.A. and N.S. men posted in and 2 junior Regular Officers.

"B" Field Ambulance was an existing Field Ambulance loaned for this exercise

The F.D.S. was very much in skeleton from the T.A. with 20 N.S. men attached.

Each unit was heavily umpired. the following extracts are taken from umpires reports giving the 3 best and 3 worst points of each unit.

"A" FIELD AMBULANCE

At approximately 1900 hours October 30 a D.R. of the 2 R.T.R. was involved in an accident near CARDIGAN PLANTATION 878959. He was dressed and put up in a Thomas Splint by the C.C.P. at this location. He was then evacuated to the A.D.S. at 880901, the splint adjusted and evacuated to the Civilian Hospital at Bury St. Edmunds by 2100 hours where the orderly was complimented on the state of the case. This, the rapid and comfortable evacuation of the casualty from a battle area to the static treatment centre (e.g. C.C.S. or General Hospital) is the essence of the function of a Field Ambulance.

The Layout of C.C.P.s on October 30

BEST

No. 1 at M.R. 878959. This was in support of a mobile Screen (Timforce). Treatment was laid out in a 3 tonner and unpacking was at a minimum as orders to move at short or no notice were expected. The balance between ability to function and readiness to move was most intelligently drawn.

No. 2 at M.R. 892933. A more formal and complete layout covering the normal function of a C.C.P. Treatment, cookhouse, store and staff sleeping as well placed and cover and signposting good.

Within the A.D.S. the handling of a composite group of men including 60 N.S. men of eleven weeks' training by the R.S.M. of 162 Field Ambulance was admirable. The work of the cooks and the Sanitary Sergeant largely with improvised equipment also contributed greatly to the efficiency of a very raw unit.

"Q" Side.

This unit was collected together from several sources and equipped at short notice on a scale thought to meet the occasion. There were certain glaring gaps in equipment, i.e. lighting consisted of hurricane lamps and only 6 Tilley lamps (1 U/S), heating nil, and also shortages of camouflage, stationery and hygiene equipment.

Even cooking equipment was incomplete.

WORST

It seems that while great efforts had been made to equip this temporary unit, the absence of a responsible commissioned Q.M. led to loopholes which made the working of the unit extremely difficult.

There was a delay in establishing contact with A.D.M.S., Bde., and Battalions, full all round contact not being established until nearly twenty-four hours after the A.D.S. was functioning.

Air Concealment.

Camouflage was good but individual regard to danger from the air and reaction was slow and inefficient (perhaps in real action one bomb would put this right). The attempt at deception, i.e. a dummy A.D.S. in buildings, was in my opinion dangerous, the buildings being too near.

General Comments.

That a composite unit of less than half strength and with only 2 per cent experienced personnel of all ranks could function at all can be reckoned as no mean achievement in itself. However, the old lesson that the cohesion and team spirit of an experienced unit is of infinite value, has been relearned.

That one of the points of adverse criticism should be delay in establishing contact is interesting in that the new establishment of a Field Ambulance has so few motor cycles. It would appear that this essential point is difficult even under full establishment conditions.

The behaviour of the sixty raw N.S. men was extremely good and they proved both quick and willing to learn.

"B" FIELD AMBULANCE

BEST	Liaison with formation headquarters and with forward units.
	General unit layout.
	Unit administration.
WORST	Tendency to request unnecessarily for excess vehicles and stores.
	No standing orders for battle had been compiled.
	Frequent state of uncertainty regarding adequate water supply.

General Comments.

Every opportunity was taken during the exercise to instruct junior officers and men.

The morale and spirit of the unit was good.

Reaction to hostile aircraft was at first good but later deteriorated. This was no doubt due to the exercise nature of the attack and would speedily be amended in war.

FIELD DRESSING STATION

This unit was open all the time in the Div. Adm. area. It dug itself in well and fulfilled its actual and exercise functions very well. Great credit is due to the T.A. officers and men who came out for this six day exercise and lived under uncomfortable conditions in late autumn in addition to their period of annual camp.

DENTAL ARRANGEMENTS

During the planning stages of the exercise it was suggested that Dental cover on the spot should be provided for the personnel taking part.

This suggestion was agreed to and arrangements were made for two Mobile Dental Units—one prosthetic and one surgical—to be attached to the medical transport and proceeded to the Div. Adm. area, FORNIAM PARK, on October 28 1950, and the units to be attached to the Field Dressing Station.

Dental treatment was carried out for personnel reporting sick at the latter site on the morning October 29, 1950. On the same afternoon, acting on instructions from A.D.M.S. of the Div., the Mobile Dental Unit (Surgical)

proceeded to the site of "B" Field Ambulance where it functioned during the remainder of the Exercise. Minor lighting difficulties were encountered owing to the position of the site under trees and camouflage netting. These were overcome, however, and the dental officer attended at an average of 5 patients a day during the remainder of the Exercise and thus fully justified his presence.

It is suggested, when a change of site is ordered for Dental Units by the A.D.M.S. during future Exercise, that he ensures that both the Prosthetic and Surgical Units move together, as their efficiency is much impaired by separation.

ACKNOWLEDGMENTS

My acknowledgments are due to General Sir Gerald W. R. Templer, *K.B.E.*, *C.B.*, *C.M.G.*, *D.S.O.* General Officer Commanding in Chief, Eastern Command, for permission to use some of his own notes in this article.

DR. JAMES BARRY

BY

Colonel N. J. C. RUTHERFORD, *D.S.O.*

Late Royal Army Medical Corps (Retd.)

MUCH has been written during the last eighty odd years on James Barry, Inspector-General of Military Hospitals, who served in the British Army from 1813 to 1859, and was found at death to have been a woman. More interest exists in South Africa concerning this unique personality than elsewhere, because Barry spent the early days of her service in the Cape where she attracted considerable notice as personal medical attendant to the Governor, Lord Charles Somerset, and filled such a place in Cape Society of those days as to have left a definite memory.

At least one book has been written painting a picture of the behaviour and quaint characteristics of the flamboyant, almost grotesquely uniformed Staff Medical Officer who doctored the ladies and quarrelled with the men. I have always been interested in Barry since my own soldiering days in the Cape when I walked the stone-flagged stoep at the back of Alphen, Wynberg, where Barry fought her memorable duel with Captain Cloete, A.D.C. to Lord Charles Somerset. However, I think it would be interesting to those who have read or heard of those days at the Cape, when the young doctor was at her peak, to follow up what happened to her in later years when she grew old and changed by long service and foreign climates.

Incidentally, during all her early years the only picture of Barry seems to be the small miniature frequently produced showing the long narrow face, small compressed mouth, and mop of hair, peering over the top of a tall military collar. What did the years bring to the woman carrying on successfully the difficult, seemingly impossible, deception of brother officers and social acquaintances?

Barry certainly appears in a book called "A Modern Sphinx," written by Major E. Rogers, Staff Officer of Pensioners, and published in 1881. Here she appears as "Dr. Fitzjames" and it is easy to recognize the description and mannerisms of Barry of the Cape, now older and getting senior in rank.

The appointment would have been Senior Medical Officer of the Troops stationed at George Town, British Guiana, a far cry from the salubrious climate of the Cape, and a place known to be highly malarious and liable to epidemics of yellow fever. The author spends considerable space in describing the Doctor as being "an oddity in appearance, peevish, speaking in a sharp crabbed tone, untidy in his costume, but on the other hand a good fellow at heart, and an

excellent physician." He tells stories of various incidents in the life of the Colony showing Barry's touchy and quarrelsome disposition in the Officers' Mess, but also his care of the women and children of the Garrison and their confidence in his skill in his profession. Much is also made of the Doctor's resolve to live alone and his insistence on separate quarters in Barracks, or on board ship when inspecting up country in the Gun Boats of the Royal Navy taking the Staff by river transport. Mention is made of the invariable presence in Barry's menage of a small dog of an irritable and snapping, barking habit, which accompanied him on journeys and slept in his cabin on board ship.

In the photograph I was able to obtain of Barry (as far as I know the only one ever taken apart from the Cape miniature) she is depicted in civilian clothes accompanied by her faithful black servant and the dog, so it seems a fact that it was part of her defensive armament to ensure due notice of the arrival of visitors and protect against sudden surprises. Of course one recognizes that "A Modern Sphinx" was written in 1881, long after Barry's death in 1865, and many peculiarities that attracted little notice during his life were now recognized as female attributes. The story of the Alphen duel is recorded in "A Modern Sphinx" and described by an officer who claims to know Barry's antecedents, but beyond mentioning that one of his (the officer's) uncles had left all his money to Barry's sister, he gives no further information beyond hinting that Barry had inherited this money, and so was able, when at the Cape, to obtain everything that money could provide, and cut a fine figure in Society. This certainly bears out the fact that on several occasions Barry was independent enough to take leave of absence when she liked, and pay all her own expenses, sometimes without even bothering to apply for leave officially.

Regarding the still unsolved mystery of Barry's family connexions, there exists at the Royal Army Medical College in London a cutting from a paper called the "Whitehaven News" of a date following Barry's death in 1865, giving an account of a visit paid to Whitehaven Castle as the guest of the Earl of Lonsdale by Barry, and that she was seen to be walking about the streets or taking a morning drive with Miss Lowther of Distington. Comment is made in the paper on the contrast between the pale sallow delicate look of the little Doctor compared with the brawny-looking figure of the black servant, as they appeared in public.

In trying to follow this cue I had the temerity to write to his Lordship, and he courteously replied that he had often heard the family say that Dr. James Barry turned out to be a woman at her death; and he enclosed from Somerset House, Whitehaven, a letter saying that enquiries revealed nothing relating to Barry, but that there was a record that William, Earl of Lonsdale, had, amongst his personal attendants, a female Doctor, but it was understood that this person was a foreigner, and it may be something more than mere coincidence that in one of the bedrooms at Whitehaven Castle there were a number of medical books.

Is it stretching a point too far to recollect that Barry carried out her medical

studies at Edinburgh and must have spent her holidays somewhere during the out-of-term periods when students left the College, but continued their readings at their homes, and where a young female could resume her feminine attire? However, it seems fairly certain that Barry frequently claimed to have highly placed connexions and this claim appears again in a letter I secured lately from a gentleman whose father lived in Kingstown, Jamaica, and often spoke of knowing Barry intimately and his speaking of a cousin in Scotland, a Lady Jane Grant or Gray, to whose care he was prepared to send the baby of a lady in Jamaica if she would agree to Barry adopting the child. Apparently the Doctor showed great interest in the infant and often made her gifts and presents of various sorts. This was in 1859 when Barry was Inspector-General of Hospitals, Jamaica, and shortly before her retirement from the Service on half-pay.

To follow the story further I came in contact with an elderly lady living in England whose father was in close touch with Barry as an official in an Army Agents where Barry banked. To this gentleman she gave the photograph showing Barry as an elderly frock-coated gentleman, grouped with the dog, and the faithful black servant. It is easy to recognize the Doctor's features in the photograph compared with the Cape miniature, an aged edition of the



gallant uniformed youth of the Gardens, Cape Town, and the Castle, Government House, and frequent visitor at Alphen, Wynberg, sitting on the stoep after dinner, sipping coffee and entertaining the Cloete family with the latest Cape social gossip, combined with snippets of news from English high life circles. It will be noticed in the picture that Barry is wearing a ring on his flowing cravat. The Bank Official showed the ring to his daughter after Barry's death, and told her that the Doctor said it was presented to her by Emperor Maximilian of Mexico after an operation she had performed on that tragic Archduke. When Barry was in Mexico is not known, but as she was in Jamaica about the period of Maximilian's acceptance of the Throne of Mexico, there is at least the opportunity of making contact.

A final word from the lady who supplied the photograph, and kindly gave me permission to use it, was that her father told her that the clerks in the office somewhat irreverently called Barry "the old woman" because of her squeaky high-pitched voice. The Banker purchased Barry's travelling trunk after her death and it remained in his family for many years, causing some amusement as pictures of ladies' fashions were pasted in the lid. Barry left his watch and chain to his Banker friend. Here again is evidence that the Doctor's effects were disposed of in the ordinary way and the supposition of the intervention of highly placed persons to hurriedly remove all personal effects of the deceased is not borne out. And indeed why should such action be taken? Whoever was "James Barry" she had the distinction of being first—THE FIRST WOMAN DOCTOR of the British Isles. Secondly—one who carried out a long career in the British Army, displayed professional attributes of the highest order, served her country in all climates with distinction, and, if she preferred to do so by the only way available in her time, by assuming the outward trappings of the male sex, all the more credit to her courage and pertinacity. A wonderful performance strangely overlooked and unchronicled in her own country, but still remembered and talked about at the Cape.

Incidentally, one source of information claims Jamaica as the home country of the native servant, but it may well be the Cape. Barry certainly had a personal attendant all her time at the Cape, but the photograph depicts a youngish African type reminiscent to me of the physique of the soldiers of the West India Regiment. As Barry served with a Battalion of that Regiment in British Guiana and in Jamaica, she would have had a personal servant from the ranks and could have "bought him out" and taken him home when she retired to England and ended her days at 14 Margaret Street on July 16, 1865, seven years after her retirement from the Army.

To quote again from the Dictionary of National Biography "said to have been the granddaughter of a Scotch Earl and her motive in concealing her sex to have been love of an Army Surgeon," so as to enable her to "follow the Drum" and in the footsteps of her cherished Army Surgeon. Personally I should think there would be no better way of breaking up a love affair.

EPISODES OF A GENERAL HOSPITAL IN WAR

BY

Colonel K. FLETCHER-BARRETT, *O.B.E.*, *M.B.*, *F.R.C.S.*

IN order to take over command of 29 British General Hospital (1,200 beds) in Teheran, Persia, on April 5, 1943, I arrived in Teheran, late at night in a snow storm, having driven myself by road from Baghdad in Iraq, to find the hospital partly in a building, and partly in tentage. The first job was reorganization, and, as the Matron, Registrar, and Quartermaster had been all recently appointed, we were able to get down to it from scratch.

I was greatly interested in the building, it was a partly completed hospital, which had been erected under German supervision, ostensibly to be used for the poor of Teheran, and sited some two or three miles outside the city. It was a very curious building of four floors, containing a number of rooms of varying sizes, the majority being small ones in which it was difficult to put beds, without a considerable waste of space, owing to lack of adequate width in the rooms. There was a very large lecture room, with facilities for film projection and an epidiascope, but, unfortunately, no apparatus. There were six very large operating theatres, situated in pairs, in each of the upper three floors. There was also an extensive, partially completed, telephone exchange, with inside lines to every room in the building, and eight outside lines. The building contained three or four lifts, only one of which was capable of taking a stretcher, and then only with some difficulty, when placed diagonally. On the flat roof, there were several curious concrete platforms, placed over the main supporting pillars of the building. There were two separate buildings in the grounds, which barely accommodated our eighty Sisters. It was a very unusual construction for an hospital for the indigenous poor of Teheran, but an excellent one, complete with A.A. emplacements, conference rooms, map rooms and offices for an Army G.H.Q.!

When I arrived the hospital was pretty full, some of the patients were in tents, and the latter included three or four severe smallpox. Among the patients in hospital were a fair number from the tail end of an outbreak of diphtheria in one of the Divisions. These were of particular interest, because the early symptoms had been mild; the early stages had, in many cases, been missed, and the majority of cases were either cutaneous or paralytic complications. The recovery rate was very good indeed.

The smallpox was almost confluent in type, but, as far as I can remember, was confined to 5 cases of whom 2 died. A point of interest was that one of

the orderlies, a cowman in civil life, volunteered and insisted on nursing these patients, although he repeatedly refused vaccination. One day I discussed with him the prophylactic inoculations for cattle. He heartily agreed with these, but on no account would he accept vaccination, basing his views on the grounds that cattle were animals, whilst men were human beings, and that's all there was to it!

On occasion we received Russian soldiers as patients; in all cases they were accidents, but under no conditions would the Russians permit their men to be kept and treated by us. On one occasion they took an accident case out of the operating theatre, as the anæsthetist was about to commence the anæsthetic. I wonder what the Russians were afraid of? I was particularly impressed with the turnout and discipline of the Russian soldiers. I never saw a dirty, untidy or drunken one in the streets of Teheran.

Outside Teheran, there were refugee camps in which there were large numbers of Poles, who had trekked from Poland to Persia via Russia. They were looked after mainly by their own people, but occasionally were referred to us for specialist advice and treatment. We employed a number of the women on various duties in the hospital, they were also very acceptable to augment the female population at our dances. There was great anxiety lest typhus, which had broken out among the Persians, might invade the Polish camps. However, this did not materialize, but we opened up an isolation hospital in tents for the Persians. In providing staff for this we were assisted by personnel from the Indian Military Hospital which was situated nearby. I am glad to say that the combined efforts of the British and Indian Medical Services were most successful, but I regret that I am unable to give any statistics. I would like to make particular mention of the excellent work done by the Q.A.I.M.N.S. We had some difficulty in fitting them out with protective clothing, particularly trousers, which in general were uncommonly large and odd in shape. It was before the days of "Sisters in Battledress," and gave rise to some amusement which did nobody any harm.

On one occasion an Indian Medical Assistant Surgeon arrived out of the blue, with no posting orders or other information as to why he had come. After some correspondence which took some time, it was eventually discovered that he should have gone to 29 Indian Military Hospital which was many miles from Teheran. We frequently received correspondence for that hospital, which emphasizes the futility of having two hospitals of different Services with the same number. Confusion would have been less likely had one been numbered 29 and the other 1029, but it was not possible for any action to be taken in G.H.Q. when I put up this suggestion.

There was great excitement one day, when I was told, under conditions of the greatest secrecy, to prepare to receive a very important patient, who was believed to be suffering from some form of poisoning. A quarter at one end of the hospital was isolated by barbed wire, a Sikh Guard mounted, and orders were issued that nobody, other than the Matron, the medical officer, and the

orderlies actually dealing with the patient were to approach the area. All these were paraded before the Guard, so that the soldiers of the Guard would be able to identify them. This proved to be too much for one of my inquisitive lads, who, one evening just as it was getting dark, crept round the block to have a look through the window. He was convinced that it was out of bounds, when a bullet from the Sikh sentry whistled past his ear! He was extremely lucky that for once the sentry was not right on his target. All the medical personnel on duty had orders to approach the Officer of the Guard, before visiting the patient, as it was hoped that some of the patient's friends might make an effort to get into touch with him. When the patient was fit enough, he was taken under armed guard for exercise in the grounds of the hospital, where there was usually an awed audience, watching from a respectful distance. The patient turned out to be one of several enemy agents, who had been dropped by parachute, and who had taken some form of poison, but not enough of it to achieve its purpose. Eventually he left us, having formed a close friendship with the Intelligence boys, whose acquaintance he had made during his recreational exercise in the hospital grounds.

In September 1943 we had orders to move. Strict orders were given that no personal property was to be packed with either the G.1098 or the I.1248 equipment, which was to go to Suez via Basra, but I sent my Canadian officers, I had two—Captain M. E. Hall and Captain C. Rennie, R.C.A.M.C., both of whom had volunteered in the earliest days of the war, to serve with the British Army, and who remained with us to the end of it—to go with the equipment. On arrival in Basra, they were to go to the Base Ordnance Depot, and get as much equipment, especially tentage, as they could lay their hands on. This they did admirably.

The Sisters went off to a flying start under command of my Ophthalmologist (Major C. Heath) to Baghdad, thence by Nairn transport to Haifa and eventually to Egypt. I took the precaution, despite Staff objections, of insisting that they took their personal baggage with them. It was as well that I did so, because as soon as they arrived in Egypt, many of them were scattered around the Middle East by the Chief Principal Matron, with the minimum of delay. The other General Hospital which left Paiforce at the same time, sent all their officers' and Sisters' personal baggage with their equipment. As that hospital was disbanded in Egypt, we often wondered how many of them ever saw their kit again.

The male complement of the unit travelled shortly after the Sisters over the same route to Egypt, where we eventually arrived in Quassasin, to be met by our Matron, who demanded that I should do all I possibly could to have them returned to their own unit, and the sooner the better! In the meantime, Hall and Rennie had arrived in Suez, where they set up their camp beds, actually on the dock side, and grabbed every bit of our G.1098 and I.1248, or anything looking remotely like it, as it came off the ships. However, after we had got about 90 per cent of it, orders were received to hand it in to Ordnance

“THE FUTURE OF THE R.A.M.C. JOURNAL”

THE JOURNAL OF THE ROYAL ARMY MEDICAL CORPS was first published in 1903. Since that date it has become an important link in the professional activities of the Corps. It is, however, unfortunately true that, in the last few years, the number of subscribers has dropped and, at the same time, the cost of production has increased very considerably. The Journal now produces at an approximate loss of £700 each year, which obviously cannot continue indefinitely.

The Journal Committee has therefore reluctantly decided that publication of the Journal shall cease after production of the issue for December, 1951.

However, discussions are at present taking place between the Directors-General of the Medical Services of the Royal Navy, Army and Royal Air Force with a view to launching a new quarterly publication, provisionally named “The Medical and Dental Journal of the British Armed Forces.” Further details of this new publication are being circularised to all subscribers to the R.A.M.C. Journal together with a form on which officers may state their opinion of the proposal.

The subscription to the new Journal will probably be £1 per year (instead of the present subscription of 30s. to the R.A.M.C. Journal). The target date of the first issue is the Spring of 1952. *The Army Medical Services Magazine* will be published as an entirely separate publication with a separate subscription.

The Director-General and the Journal Committee hope that all officers, serving and retired, will give their full support to this new venture as well as to the present Journal during the last few months of its existence as a separate publication. Arrangements will, of course, be made for officers to transfer their existing subscriptions when the time comes.

and Medical Stores. It was at this point that certain officers and Sisters announced that they had packed some of their personal belongings with the equipment! I think that my Officer i/c Surgical Division, with one or two of the Sisters, rushed down to Suez, where they managed to rescue their gum boots and a few other items.

After a short while in Quassasin which seemed like ages, we were split up into three parties, which departed to embark at Alexandria, Port Said and Suez. Before we left Teheran, I had heard that troopships had gone dry. Fortunately on our journey across the desert to Haifa, we encountered a severe rainstorm and flooding at Mafrak, where I was able to persuade the O.C. troops that a rum issue was essential. There was quite a surplus of rum which somehow found its way into some of the water bottles; so the first convoy through the Mediterranean, since it had been denied to us by the enemy, was not dry as far as we were concerned. I don't think that there were any other units who were so unfortunate as to encounter floods and rain storms, but I believe that there was one foreign ship in the convoy, whose Captain had not received the dry orders or if he did, had not been able to understand them! Eventually we arrived at Gurrock and Liverpool. At Gurrock we were met by a Regimental Band and General Sir Oliver Leese. The latter told me and other Commanding Officers that we had been specially selected for the invasion of Europe party, which was a big feather in our caps.

During our stay in Egypt, two of our officers and several of the Sisters had been posted away very much to our regret: otherwise the majority of the unit had been together since leaving the United Kingdom for the Middle East. Once again in Great Britain, the unit joined up in North Wales with our Headquarters in Betts-y-Coed and detachments near Conway and Carnarvon. The detachments were manning Reception Stations and Headquarters a small hospital. A number of medical officers and Sisters were posted on temporary duty, but we had enough to carry on with our training which was my main concern. I was particularly anxious that we should be proficient in tent pitching, so we concentrated on this, which in due course proved to have been a wise decision.

In Betts-y-Coed, we received our first two women doctors complete in battle-dress. A decision had to be arrived at as to their status in so far as the Mess was concerned. I was very pleased when they both elected to be treated in exactly the same way as the men, and none of us ever regretted this decision. Both they and the several others who joined us as the war went on were most welcome, and we were all grieved when the time came, at the end of the war, for them to leave us. I know that the presence of women doctors among the men in several other hospitals became a bone of contention, but I could never understand why this should happen. I even heard tell of a C.O. who solemnly announced that under no conditions would he permit women to be members of his Officers' Mess. A few personal remarks from the D.M.S. settled this one!

At lunch one day, the A.D.M.S. asked me who the "young boy" was at

the end of the table; it took some time to live that down, and it was a good thing that he never heard the caustic and somewhat quasi-professional remarks of the lady concerned. Also it was here that my Matron made her famous remark, on seeing two of the Sisters wearing battledress on one of the corridors: "Ladies. Will you both go away at once and put on skirts. I won't have you going about looking like female Medical Officers." Little did we think at that time, that all the Sisters would be milling around in battledress in the mud of Normandy before the end of the year.

Some time about May 1944, we received orders to move. We were rapidly brought up to strength in officers and Sisters, many of the latter arrived wearing their civilian uniforms. There was some difficulty in getting the Sisters clothed and equipped, as the nearest tailors for women's uniforms was in Liverpool, a difficult and time consuming journey by rail from Betts-y-Coed. However, we managed to get it done and in due course arrived in Goodwood House, Sussex, where we were joined by B.R.C.S. and Canadian Welfare Officers, and also A.T.S. and V.A.D.s, fifty of each. Before we left for Goodwood, certain officers and men had been detached for duties with Beach Medical Units and also to augment the surgical facilities in the south of England. They all rejoined us shortly after we landed in France.

The unit was allotted five three-ton lorries for personal baggage: they were waterproofed, loaded and sent off via London Docks in charge of Captain Hall. I have never seen any lorry so grossly overloaded as these were, either before or since. When loading was almost completed, I received a signal: "29 Gen Hosp will NOT rpt NOT take piano with you." This caused considerable alarm and despondency, as it had been sold to us by a rather important person at a token price. I did not see it loaded, nor did I expect to see any of our lorries arrive in France, I imagined that the moment they were dropped on the sea bed, they would become deeply embedded in the shallow water and immobile, but I am glad to say that they all turned up intact, including the piano, in Normandy. In order to carry as much of our personal property as possible with us, we travelled in full marching order, including haversacks and packs. With this in mind most of the officers, including the Matron, abandoned heavy items such as camp beds. I carried in lieu of a bed, a Li-Lo which I found invaluable.

From Goodwood, we went to the Concentration Area, and thence to embark in L.S.T.s in which we crossed to Normandy during the night of July 17/18, 1944. On arrival, the women were accommodated with 9 General Hospital, who had arrived some days before us. The remainder marched to a field where we spent a reasonably unpleasant night. Early the following morning, we were given a map reference to report to, and started off in a convoy of lorries. After we had gone some miles, I noticed that things seemed to be uncommonly quiet, and uninhabited, so I concluded that something was wrong, halted the convoy and went back to check up. I found that the map reference was wrong, and if we had gone on much further, we would have landed amongst the Boche!

Unfortunately, whilst I was away, we received our first casualties from a low flying enemy craft.

We turned about, went back some distance, and after travelling across country for a while, arrived in the fields, in which we were to live and work for nearly five months. Our G.1098 and I.1248 equipment arrived, but the former was found to be deficient of a certain number of female ridge poles, which resulted in our being able to put up tentage for only 600 beds. An urgent signal was sent home for "x" female ridge poles, within a few days "x" male ridge poles arrived by air. It took about a month to sort out this one: apparently someone at home was not intimate with the details of male and female ridge poles; even the A.D.M.S. wanted to know why we could not use the ones we had, and it was only when I, in an irritable frame of mind, explained the facts of life to him, that he understood!

In the meantime, we put into action what we had. Everybody in the unit, including all the women, took off their coats and worked like beavers. The result was that we put up tentage for 600 beds, including operating theatres. X-ray, Laboratory, etc., in thirty-six working hours. We had two sections of Pioneers to help with the digging of latrines and ablutions. The fourth day was spent in equipping the hospital, and I was able to signal the A.D.M.S. that we were prepared to accept casualties on the fifth day. I think that this is probably an unbeaten record.

At this stage in the proceedings, General Hospitals were acting almost in the role of C.C.S.s; but the L. of C. rapidly increased, so that we soon assumed our normal function. One amusing incident occurred in the early days, when a German S.S. officer demanded to be treated by a German doctor. He threatened me that if his wishes were not agreed to at once, it would be all the worse for me personally when the Germans came back, as they certainly would do within a short while. Fortunately, I was able to comply with his wishes by sending Captain N. Deutsch, R.A.M.C., a Palestinian subject, to see him. I was greatly disappointed that my knowledge of German was not sufficient to appreciate fully their conversation, but from the few words I did understand, I gathered that it was most instructive.

During our period in Normandy we received the unusual honour of being adopted by the City of Bradford, I think that we were the first to be so honoured. I had the privilege of flying home to go to Bradford, where I attended a Public reception in the Town Hall, at which I was presented with a plaque, designed and made in the Bradford School of Art, in commemoration of our adoption.

After the reception, a woman came up to me and asked: "How is Harry . . . ?" I just could not remember who Harry was, so I countered with: "I think that he is all right, and anyway, I can tell you that he is in no trouble." She replied: "Ah well! When tha' gets back, tell bugger to write to his mother." When I arrived back I told Harry of his mother's interest in his welfare, to which he remarked: "I don't see what the old girl is fussing about, we've been

busy here, and not sitting on our behinds doing nowt like they s in Bradford."

Many of my officers, Sisters and other ranks were from Yorkshire and Lancashire, so it was a very happy thought of the D.G. at that time, when he selected 29 General Hospital for adoption by the City of Bradford. From then until the end of the war, we received many gifts and other acts of kindness from the people of the City. They took a great interest in us and our doings, and many reports of our efforts were published in the local newspapers which was much appreciated by the unit.

(To be continued)

B.A.O.R. MEDICINE 1946 - 1949

BY

Brigadier F. J. O'MEARA, M.A., M.D., F.R.C.P.I., D.T.M.&H.

Late Royal Army Medical Corps

Consulting Physician, B.A.O.R.

IN 1764 Sir John Pringle placed his clinical experience as Physician to the Forces in Flanders and Germany, during the years 1742-1745, on record (Pringle, 1764).

The diseases of the British Liberation Army (B.L.A.) in France and Flanders from July 1944 to July 1945 are described by Dr. E. Bulmer (Bulmer, 1945).

In July 1945 Dr. R. E. Tunbridge succeeded Dr. Bulmer as Consulting Physician. In March 1946, it was my good fortune to succeed to their very efficient organization. As a consequence, few Regular medical officers of the Army have enjoyed such opportunities for accurate diagnosis as were then available. This paper is an endeavour to place on record the diseases encountered, within our present knowledge and resources, in B.A.O.R. from 1946-1949.

The disease are those of the geographical area Schleswig-Holstein, Niedersachsen and North Rhine/Westphalia. That is the area of the old kingdoms of Westphalia and Hanover. The population at risk was in 1946 one million, with no married women or children: in 1949 100,000, of whom 25,000 were women and children. Babies were being born at an average rate of 150 a month.

As the population at risk changed in sex and age, in each succeeding year, numbers and percentages, quoted in the paper, apply to British Other Ranks only. Even here the population at risk was not the same during these four years. The soldier's average age at the beginning of 1946, was 26-28 years. By the beginning of 1949, it was 19-21 years.

The general state of health remained good. There were no epidemics. There was no undue incidence of disease other than that of venereal disease, infective hepatitis, at first diphtheria and in the late summer and autumn of 1947 and 1948, a general increase of acute poliomyelitis.

The provision of hospital beds was 3 per 1,000. The holding policy in B.A.O.R. was sixty days. At no time during these years were more than 60 per cent of hospital beds occupied. Usually the occupied beds were under 50 per cent.

The diseases to be considered will be presented, in the main, in the form of the Annual Report on the Health of the Army (H.M. Stationery Office).

(1) DIGESTIVE DISORDERS

"The greatest impediment to messing are the wives and children, who must be maintained on the soldiers' pay."¹

In 1946 the incidence of digestive disorders was low. When acute perforation of an ulcer was not the cause of admission to hospital, for immediate operation, the patients were seen as out-patients by the medical specialist. 80 per cent of patients so seen were considered to suffer from functional dyspepsia, 20 per cent required admission to hospital for investigation by the examination of the stools for occult blood, the gastric acidity of a fractional test meal (gruel) and X-ray examination after a barium meal.

In the latter half of the year the final diagnosis in this 20 per cent were: dyspepsia 66, gastric ulcer 15, duodenal ulcer 94 and carcinoma of the stomach 7.

In the civilians aged 40-60 years, admitted to hospital with complications other than perforation of an ulcer, profuse hæmatemesis developed more often than melæna.

The treatment of these patients was with blood transfusion and early feeding (Witts' diet). Where the patient survived, this treatment shortened his period in hospital. Two young patients (under 25 years of age) where the lesion at post-mortem examination was found to be acute ulcer on the lesser curvature of the stomach, with erosion of an artery, were lost. The most useful leading article "The Bleeding Peptic Ulcer"—*Lancet* (1946)—assessed the difficulties in these cases very accurately.

During 1947 the incidence of digestive troubles remained low. The average age of the soldiers was younger. Where operative interference was not required the treatment was by Hurst's or Witts' diet. If the patient was in severe pain on admission to hospital, milk was given by a continuous gastric drip.

During 1948 the older men had been joined by their families and their homes were now in Germany. Where there was a history of recurring relapse in a gastric or duodenal ulcer patient, in this group, the Consulting Surgeon was asked to see the patient. The result of a recent fractional test meal (alcohol) was available at the consultation. In these selected cases partial gastrectomy gave most satisfactory results.

During the year admission with severe hæmorrhage from gastric or duodenal ulcers continued to be treated with success with morphia, drip blood transfusion and early feeding (Meulengracht type).

During the first six months of 1949 the incidence of digestive disorders

¹These are quotations from the previous accounts of disease by Sir John Pringle (1765).—(Ed.)

remained low. From July onwards the admission rate, in the areas where training and manœuvres were held—the first since the end of World War II—rose steadily. The increase was present in both regular and National Service soldiers.

A sapper, aged 47, was admitted to hospital during the year with dyspnœa. He gave a history of anorexia and pain in the upper abdomen of three months' duration. He was pale and had lost 2 st. in weight. His ankles were swollen in the evening. On physical examination his liver was found to be enlarged 4 fingerbreadths. Death followed rapidly and at post-mortem examination an annular hard carcinoma of the pyloric end of the stomach was found.

(2) CARDIAC DISEASES

"Sequelæ of fevers; obstructions with resulting dropsy or jaundice."

During the period under review diphtheria having been widespread and virulent passed into devolution. This is well represented in Graph 1.

During 1946 there were 25 deaths from cardiac failure due to diphtheria.

GRAPH I.
INCIDENCE OF¹ DIPHTHERIA.—BRITISH ARMY, OTHER RANKS ONLY.
RATE PER 1,000 (QUARTERLY).



By 1948 it had ceased to be found as a cause of cardiac death. A similar fall in incidence had occurred amongst the Germans in the British Zone. Up to November 3, 1948, 784 cases of diphtheria with 14 deaths were notified. Up to November 3, 1949, there were 660 cases, with 5 deaths (P.H. Adviser, 1949). From January 1, 1947, immunization against diphtheria after Schick testing, was increasingly used by the Army. It was also used by the Germans and had been available to them earlier. It is a clinical opinion that the severity of the illness had already waned, after a progressing incidence and virulence along the Rhine since 1930, when extensive immunization was introduced. As well as an immunized community, economic, political and social factors were tending to influence the incidence of the disease.

The second cause of damage to the heart was septicæmia due either to *Staphylococcus aureus* or *Streptococcus viridans*.

There were 11 admissions consequent upon coronary thrombosis and 20 as a result of hypertension with secondary heart failure. In three hypertensive cases polycystic disease of the kidneys was present. The value of investigating a hypertensive patient, under 40 years of age, without nephritis, by an intravenous pyelogram, was emphasized. One patient had polyserositis.

During the year two young soldiers (24 and 26 years old) died while playing football. Post-mortem examination in one case showed extensive atheroma in the coronary arteries; in the other an extensive atheromatous plaque was present in the anterior branch of the left coronary artery. In neither case was there an embolus or clot in the vessels.

In 1947 diphtheria continued to cause cardiac death. But its incidence decreased during the last three months of the year. Rheumatic fever then appeared as a clinical condition. Septicæmia (*Staphylococcus aureus*) with involvement of the heart was still encountered.

In the few cases of hypertension encountered amongst the soldiers X-ray examination after an intravenous pyelogram on one occasion showed unilateral hydronephrosis. The kidney was excised. The subsequent fall in blood pressure had been maintained when the patient was examined six months later. Coronary thrombosis occurred in two soldiers with recovery.

These latter conditions were not so benign in middle-aged officers and members of the C.C.G. Amongst these there were 14 admissions for coronary thrombosis and 26 due to hypertension with secondary heart failure.

There were 3 deaths amongst the admissions for coronary thrombosis. One of these (M., 56 years) appeared to have lived for forty-eight hours after rupture of his left ventricle. At post-mortem examination a rupture of the apex of the left ventricle was found. There was more than a pint of blood in the pericardium. A second case (M., 53 years) had a leak of blood into his pericardium. He survived his acute illness in chronic cardiac failure. Routine X-ray examination of the chest in a male, aged 28 years, showed very extensive calcification of the pericardium. He was free from symptoms and returned to duty. He was kept under observation. Within

six months, without complaint on his part, it was found that the liver was increasing in size and to direct reading, his venous pressure was increased to 19 cm. Without symptoms, he had developed Pick's syndrome. One case each of giant-celled arteritis and polyarteritis nodosa were seen.

Families were now established with the B.A.O.R. and several cases of congenital heart disease were seen in children.

During 1948 acute disease of the heart was less in evidence. When it occurred it was due to rheumatic fever or subacute bacterial endocarditis. The older officers and members of the C.C.G. continued to be admitted with coronary thrombosis and hypertension with heart failure.

A most unusual case was a member of the C.C.G. (F., 39 years), who threw a stick for her dog to fetch, while walking. She had immediate severe retrosternal pain and fainted. During convalescence she had a diastolic murmur over her aortic area. It is probable that she had ruptured an aortic cusp.

During 1949 cardiac conditions encountered were relatively numerous and varied. There were 6 deaths in soldiers, 5 being sudden and out of hospital. There was no diphtheria, little rheumatic fever and two cases of myocardial infection, thought to be due to a virus, gave a negative Hirst test in their blood serum.

Post-mortem examination of the 5 cases that died out of hospital gave the following results:

- (a) M., 24 years. Rupture of posterior wall of left ventricle. No history of trauma or previous ill-health obtained from his comrades.
- (b) M., 28 years. Coronary thrombosis.—Anterior branch of left coronary artery.
- (c) M., 33 years. Atheroma-coronary arteries. No thrombus demonstrated.
- (d) M., 35 years. Coronary thrombosis.
- (e) M., 42 years. Coronary thrombosis.

In addition 3 officers and 2 members of the C.C.G. died as a result of coronary thrombosis during the year.

An unusual feature were three women with coronary thrombosis, one of whom died.

3 National Service soldiers were found to have old-established endocardial lesions, of presumed rheumatic origin. A member of the C.C.G. (M., 36 years), died in chronic heart failure. Post-mortem examination showed extensive old-standing rheumatic lesions of his aortic and mitral valves.

A most interesting feature of the years under review has been the low incidence of disordered action of the heart in the soldiers.

The patients formed three groups:

- (a) Soldiers, aged 19–40 years.
- (b) Officers and Civilians, aged 40–60 years.
- (c) Children during 1948 and 1949.

The conditions in which heart muscle failure was encountered could be grouped:

(a) Acute

Rheumatic fever.
Septicæmia.
Virus infection.
Beri-beri condition of stout drinkers.

(b) Subacute

Rheumatic fever.
Septicæmia.
Hypertension.
Coronary disease.

(c) Chronic

Rheumatic fever
(valvular disease).
Hypertension.
Coronary disease.
Constrictive pericarditis.

(3) RHEUMATIC FEVER

- "1743 — Rheumatic pains with or without fever.
1744 — Flanders: rheumatism with fever.
1745 — Less rheumatic fever."

In this group we were not one whit more erudite than Sir John Pringle. With the older age-group in 1946, there was very little rheumatic fever. A more frequent disability encountered was a febrile infective polyarthritis with a raised blood sedimentation rate. The condition frequently persisted for two or three months without presenting the full picture of Reiter's syndrome.

By 1947 the age of the soldier was younger and there was a universal low incidence of rheumatic fever, except in Berlin. The incomplete Reiter's syndrome continued at the same percentage incidence.

The younger age of the soldier continued in 1948 when there was a steady low incidence of rheumatic fever generally, except in Berlin. One soldier (19 years) was ill for less than a week before his death, with acute rheumatic pericarditis. Cases of incomplete Reiter's syndrome continued. During 1949 the incidence of rheumatic fever and incomplete Reiter's syndrome continued unchanged. An airman (21 years) was ill with acute rheumatic pericarditis during the year. He fortunately responded rapidly to treatment with salicylates.

During these years the number of cases of acute gonococcal arthritis varied from 2 to 6 cases a year.

(4) STAPHYLOCOCCAL FEVER

Ryle has given a very complete description of this condition (Ryle, 1948). The cases seen in B.A.O.R. were frequently lacking in physical signs and

diagnosis was difficult. When a history of boils or a pustular skin infection, about six weeks previously, could be obtained or recent scars were found on physical examination, the condition could be suspected with a reasonable degree of assurance.

In their absence and with:

- (a) negative blood cultures,
- (b) an absence of leucocytosis,
in 40 per cent of cases a leucopenia to 4,000 white cells per c.mm.
and the differential white cell count showing a diminution in
polymorphonuclear cells with a relative increase in lymphocytes;
- (c) blood sedimentation rate (Westergren): 6–20 mm. one hour,
- (d) no response to intramuscular penicillin, 1–2 million units.

The consultant found it difficult to maintain that the case was probably one of septicaemia with pus formation.

Occasionally after six to eight weeks' illness scanty red blood cells would be found on microscopic examination of the centrifuged deposit of the urine. Eventually evidence of abscess formation would be obtained in those subacute cases.

The site of the abscess was frequently in a vertebral body. These cases were complicated by signs of pressure on the cord due to collapse of the vertebral body on formation of an epidural abscess. Other sites selected were the lungs, peri-renal tissues, in deep muscle planes, subphrenic, prostate, brain and on three occasions a solitary abscess of the liver was found. In two patients, at post-mortem examination, in the third patient the condition was suspected and he recovered after operation.

(5) INTESTINAL INFECTIONS

Intestinal worms, bacillary dysentery and typhoid fever are all shrewdly discussed. Dysentery is not a disease of civil life. "Astringents are not necessary and should not be used."

During 1946 the incidence of bowel disorders in a country, where towns and sanitary installations had been destroyed by war, remained surprisingly low:

<i>Shigella flexneri</i>	...	...	...	30
<i>Shigella sonnei</i>	...	...	...	4
<i>Clostridium botulinum</i>	...	...	...	1

Ten cases of infection with *Entamoeba histolytica* required treatment in hospital. There was no suggestion that any of these patients had been infected in Germany.

The admissions during 1947 were:

<i>Shigella shiga</i>	...	...	...	1
<i>Shigella flexneri</i>	...	...	...	8
<i>Shigella sonnei</i>	...	...	...	5

There were 4 admissions with *E. histolytica* infections. Two of these infections appear to have been acquired in Germany. 7 patients were treated for amœbic hepatitis.

In 1948 an early dry spring was followed by a wet summer and autumn, with little fly breeding. The admissions to hospital were:

<i>Shigella flexneri</i>	...	...	...	1
<i>Shigella sonnei</i>	...	...	...	11

There were 8 admissions for *E. histolytica* infections.

There was an outbreak of food poisoning in one unit due to *Salmonella typhi murium*. There were a total of 22 admissions due to this infection. The unit Cook Corporal was found to be a faecal carrier of *S. typhi murium*. With his removal from the cookhouse the outbreak stopped.

The outbreak was a mild one. The symptoms were fever and headache lasting from two to four days, with abdominal pain and nausea.

The summer of 1949 was also wet, with few flies. There were 3 admissions for bacillary dysentery:

<i>Shigella flexneri</i>	...	...	...	2
<i>Shigella newcastle</i>	...	...	...	1

There were 2 admissions for *E. histolytica* infection.

During these years the admissions for typhoid group fevers remained very low amongst the soldiers. Their relative incidence was much higher amongst airmen and German-born wives. *Salmonellæ typhosum* and *paratyphosum B.*, were the organisms isolated from these cases.

The intestinal worms encountered were *Ascaris lumbricoides*, *Tænia solium*, *Tænia saginata*, *Enterobius vermicularis* and *Trichuris trichiura*. These were not common and it was unusual to find *Ascaris lumbricoides* at post-mortem examination.

By 1948 a considerable number of the children were infected with *Enterobius vermicularis*. This was due to the German use of human excreta to manure vegetables and ground fruit.

(6) MALARIA

1748 May: Spring cases of malaria.

"Uncommon proportion of intermittents which were not all new cases."

Sir John Pringle was much concerned with malaria. During the years reviewed here it was not a medical problem. In 1946 indigenous malaria was recognised in East Friesland and the adjacent coast of Schleswig-Holstein, north of the Elbe. The vectors are *Anopheles maculipennis* and its subspecies *atroparvus* and *messiaë*.

Most of the malarial infections seen in B.A.O.R were relapses during infection with *Plasmodium vivax* which had been acquired in either Africa or Asia. During 1946, six fresh *P. vivax* infections were accepted, as originating in B.A.O.R.: during 1947 one case.

During 1946 there were 38 admissions for relapses of *P. vivax* infections, in 1947 25 admissions, in 1948 13 admissions and in 1949 1 admission. In addition in 1947, 2 relapses were notified as being due to *Plasmodium falciparum* and a further 2 in 1948.

The treatment used in malarial relapse cases was quinine Bihydrochlor. grains 10, with Pamaquin grammes 0.01, three times a day for ten days.

(7) JAUNDICE

1743 December. Belgium.

"Jaundice without fever."

"A disease of dry ground."

During the period under review, this infection was in evolution. Two factors favoured the viruses involved. An early return to the treatment of syphilis with intravenous arsenic, promoted "passage" of the virus of homologous serum jaundice.

Progressive lowering of the 1938 standards of filtration and clarification of water, before chlorination, had continued to augment the probability that viruses passed out of the body in excreta, would gain access and survive in drinking water. This has favoured the survival, dispersal and "passage" of the virus of infective hepatitis.

The incidence of infective hepatitis in the B.A.O.R. is shown in Graph 2.

The probability is that from 1946-48, the virus of homologous serum jaundice may have caused from 60-20 per cent of these cases of jaundice. After 1947 its incidence was under 10 per cent.

In the period 1947-49 the virus of infective hepatitis caused 80-90 per cent of the cases of jaundice. The clinical course of the illness also changed during this period and became more fatal for people in middle age, 40-60 years. This was in keeping with the observations of Dr. M. Jersild in Denmark (Jersild, 1947).

During 1946 there were 1,771 admissions to hospital with jaundice; in 1947, 996 admissions with 15 deaths; 1948, 599 admissions with 2 deaths; 1949, 455 admissions with 7 deaths. 4 of these deaths were in middle-aged members of the G.C.G.

Figures notified in the German civil population for infective hepatitis from January 1 to October 15 in 1948 were 3,367, deaths 28; in 1949, 4,378, deaths 68. (P.H.A. to H.C. (BZ), November 3, 1949.)

Lt-Col. J. MacKay Dick has described the clinical condition of infective hepatitis in British Soldiers in B.A.O.R. during 1946 and 1947 (MacKay Dick, 1948).

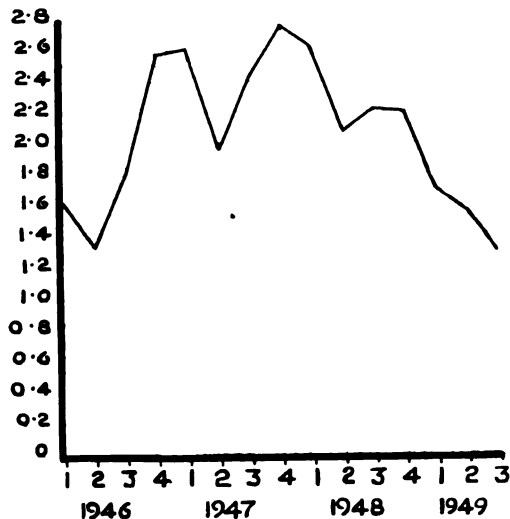
(8) LEPTOSPIROSIS

Illness due to the following leptospiræ was recognized during these years:
L. icterohæmorrhagiæ, *canicola*, *grippo-typhosa*.

As the diagnosis and grouping of the condition is dependent on serological

GRAPH II.

INCIDENCE OF INFECTIVE HEPATITIS.—BRITISH ARMY, OTHER RANKS ONLY.
RATE PER 1,000 (QUARTERLY).



investigation, in the average case, the presenting clinical picture is recorded in each group.

L. icterohæmorrhagiæ. (Host: Rat.)

Fever; hæmorrhagic herpes; calf muscle tenderness; nephritis; meningism; atypical pneumonia. Investigation: Albuminuria; microscopic red blood cells. granular casts; raised blood urea. C.S.F.: increased lymphocytes; raised urea percentage. Blood: polymorphonuclear leucocytosis.

L. canicola. (Host: Dog.)

Fever; conjunctivitis; meningism; pain, abdominal or muscular. Investigation: Albuminuria; microscopic red blood cells. C.S.F.: increased lymphocytes; urea percentage normal. Blood: usually a polymorphonuclear increase. blood urea increase dependent on renal discharge.

L. Grippotyphosa. (Host: Vole (*Microtus arvalis*)).

History of exposure in a swamp or mud.

Fever; conjunctivitis; meningism. Investigation: occasionally albuminuria with microscopic red blood cells.

Infections with *L. icterohæmorrhagiæ* were admitted to hospital from Hamburg and Schleswig-Holstein. *L. canicola* from Hamburg and Hanover: *L. grippotyphosa* from Helmstedt and Osnabruck. (P.H.A. to H.C. (BZ), 1949.)

During 1946-49 there have been several publications and discussions on these infections (Baber and Stuart, 1946; Minkenhoff, 1948; MacKay Dick and Watts, 1949; Gsell, 1949; *Proc. Roy. Soc. Med.*, 1949).

(To be continued)

FUTURE MEDICAL OFFICERS FOR THE ARMY

BY

Colonel R. H. ROBINSON, T.D.

A.D.M.S., Home Counties District

(Continued from page 228)

PART IV.—AN ARMY MEDICAL SCHOOL

(1) THE setting up of an Army Medical School is the most ambitious proposal to be set out in this paper—it would be far-reaching in its effects, revolutionary and drastic; but the position with regard to the supply of medical officers for the Army, and their training subsequent to joining and during their career, are such serious matters that they must be dealt with by drastic means, even very expensive means.

The proposal is that the Army should run an undergraduate Medical School of its own, with a suitable postgraduate school—but it is not suggested that medical officers for the Army should be taken only from those who have passed through the one school; it would be bad for the Army Medical Service if all its medical officers came from the one school with one line of thought; there must be a regular flow of new blood from all the schools so that the Army will be transfused with the best of all teaching.

(2) *Is there a need for another medical school in the U.K.?* The answer seems to be “Yes”; the existing schools are full, and the new National Health Service will require more and more doctors—it appears that the existing schools cannot turn out enough doctors to satisfy the more attractive civilian services; moreover, it would be better for the students (when the requirements diminish) if the classes in the existing Medical Schools could be diminished in size. Also, most of the existing Medical Schools in the U.K. are in “target areas” and might suffer badly in enemy attacks on this country—a school or two just outside target areas would be desirable.

(3) *The Army Medical School* would be primarily for medical students who wish to enter the R.A.M.C. after qualification; but vacancies each year could be filled by those who wish to enter the Colonial Medical Services, the medical services of the Royal Navy and Air Force, and, if there are sufficient vacancies, those who have no intention of entering any of those services.

(4) *The advantages* of such a school would be

- (i) That students, from their earliest undergraduate days, would be in a military atmosphere and would get used to Army routine and custom by the time they would be ready for commissioning—therefore, when they enter the R.A.M.C. they would not have any great difficulty in orientating themselves to Army life.

- (ii) All through their student days the men will have the military aspects of medicine and hygiene constantly brought to their attention, for in addition to the ordinary curriculum they will have definite teaching in military medicine, surgery, and hygiene.
- (iii) Much greater attention will be paid to preventative medicine, to the maintenance of health, and the prevention of injury and disease than is done *in the existing schools, where therapeutics seem to take place over prevention*. Care would have to be taken that the course of training is not inferior in any way to the average in the British Medical Schools—the Military and preventative aspects would have to be superimposed on the normal standard course.
- (iv) Propaganda in favour of the R.A.M.C. as a career would be more easily carried out in the Army's own school.
- (v) Suitable other ranks could be trained there as Medical Student Cadets—having been selected on much the same lines as the cadets for Sandhurst.
- (vi) The school would be a sound place for the training of specialists, for refresher courses, for research and for special investigations.
- (vii) The school and its attached hospital would attract into, or keep in, the Army those medical officers whose inclinations are towards teaching and research—the Army would be able to offer professorships, lectureships, etc., equal to, or better than, those in the other Medical Schools.

(5) *The source of students would be, inter alia,*

- (a) Men selected from National Service recruits or regular serving soldiers who by education, personality, etc., are found to be likely to make good doctors and officers; they would be selected from volunteers by competitive examinations combined with personnel selection and testing.
- (b) Scholarships from the Public Schools, Grammar Schools and other higher educational schools for men who want to serve in the R.A.M.C. after qualification, subject to selection as suitable.
- (c) Other aspirants for commissions in the R.A.M.C. who have the necessary qualifications for registration as medical students and are otherwise suitable.
- (d) Students sponsored by the Admiralty, Air Ministry, Colonial Office, etc.—if there are any vacancies.
- (e) Other students not initially intending to join the R.A.M.C.

(6) *The number of students* enrolled would be up to say 75 each year, either in one batch or in two; the categories of students in para. 5 (d) and (e) above would be admitted only if the Army candidates fall short of the total number admissible.

(7) *The fees to be charged* would be inclusive of tuition, examination fees, board and lodging, and should be slightly less than the average of fees payable at the other schools of the U.K. and of the charges made for board and lodging in University and Medical School Student Hostels.

The fees in respect of the different categories of students referred to in para. 5 will be paid as under:

Category (a)—will be paid in the first place by the War Office and will be recovered from the individual through his pay or gratuity or both whilst he performs his obligatory postgraduate military service.

Category (b)—a part of the whole of the fee may be recoverable as in Category (a) according to the terms of the Scholarship or "assisted studentship."

Category (c) and (e)—payable by the individual.

Category (d)—payable by the Service concerned.

It is important that fees and other costs should be recovered from the medical officers during their postgraduate obligatory service in respect of Categories (a) and (b) because of the rates of pay for medical officers of the R.A.M.C. One of the reasons why the pay of medical officers is higher than in other Arms is because of the cost to the individual to get himself qualified before commissioning; the infantry officer, say, is trained as such at Sandhurst largely at public expense—not so the medical officer; therefore the medical officer has a higher rate of pay partly to balance this. If the War Office trains some of its own medical officers then there would be a case for a lower rate of pay for the Army trained doctors, and two rates of pay for doctors in the one service would not do; therefore it is suggested that the higher rate should continue for all medical officers, but that those trained at public expense should have deductions from pay/gratuity until the value of the fees, etc., at the Medical School have been recovered.

In parenthesis, there would seem to be a case for the recovery of fees from medical officers who have qualified in medicine (and become eligible for the higher rate of pay in the R.A.M.C.) at public expense through local authority and Ministry of Education Scholarships and Grants—parents who have paid rates and taxes and have also paid for the further education of their sons certainly think so.

Many details would have to be worked out concerning how to deal with students who fail to make the grade or whose services are not likely to be required by His Majesty.

(8) *Military status of medical students*: all the categories of students would be officer cadets of the R.A.M.C.

Category (a) will be serving soldiers (regular or National Service) of any Arm of the Service—on selection for the Medical Students' course those not in the R.A.M.C. will be transferred to that Corps; during their studentship period they will be placed on a Special List of the R.A.M.C., but will be liable to reversion to the general active list of the Corps if they fail to make the grade.

Category (b) who will have service obligations after qualification will be

- (i) enlisted into the R.A.M.C. for the period of their studentship, and will be subject to Military Law and Discipline as in the case of Category (a), if their circumstances and the form of their scholarships are such that they need to draw pay from the Army.
- (ii) those not requiring or needing pay from the Army will be enrolled into the R.A.M.C. (T.A.).

Category (d) R.N. and R.A.F. would be enrolled in Cadets of the appropriate service. Other categories will be enrolled into the R.A.M.C. (T.A.) (a Special List) for the period of their studentship and will be subject to such Military Law and Discipline as is applicable to the other ranks of the T.A.

The whole idea about fees and status of students might be simplified and reduced to similarity with officer cadets at Sandhurst and cadets and officers of the R.E. who go to the Universities for Engineer and Science Degrees. The suggestions above are probably too complicated.

(9) *The curriculum* at the Army School of Medicine will be such that all the ground is covered for the M.B., B.S. Examination of London University, The English "Conjoint," The Scottish "Triple," L.M.S.S.A., etc. It will be *inferior to none*, but will be *superior to all* in the amount of stress given to the maintenance of health and the prevention of injury and disease. Similarly, postgraduate teaching and clinical experience will be provided for all the Specialists and Higher Qualifications—again inferior to none.

From the beginning diplomas and certificates should be awarded for the specialists subjects for which the other examining bodies have not catered yet. In due course it might be considered desirable to set up an examining body for diplomas, etc., in all branches of medicine and surgery at the School; that is, for the Army to award its own Registrable Qualifications. The standard of teaching and examination should be such that men are anxious to get into the Army School even at the cost of having to serve for a period of years in the Army afterwards.

(10) The Army Medical School should include also a Dental School for the teaching of dentistry and for the purpose of training dental officers for the Army on the same lines as those suggested for medical officers.

There should be also a Nurses School where trainees for commissions in the Q.A.R.A.N.C. could be dealt with. But again it should be stressed that the Army Schools should not be the only channels of entry to the Medical, Dental, and Nursing Services of the Army; they must be merely one of the channels, but the best channel; graduates and others from other Medical, Dental and Nursing Schools must be infused regularly into the Army.

(11) The School and Hospital should provide all the teaching and experience necessary for the various civilian qualifications which the *other* ranks of the R.A.M.C. and Q.A.R.A.N.C. may wish to obtain, and should be encouraged to obtain, such as M.P.S., M.R.S., S.R.N., C.P.H., etc. This would do much to enhance the reputation and popularity of the Corps for other ranks, who would be able to obtain qualifications useful to them on leaving the Army; moreover there would be a constant stream of technicians for the R.A.M.C. and Q.A.R.A.N.C.

(12) *The teachers* in the Army School and Hospital would have to be first class, the best men in their specialties in the Army; they would be employed full-time in the School and Teaching Hospitals and would be Professors (say Colonels and Lieutenant-Colonels), Lecturers (say Lieutenant-Colonels and Majors) and Demonstrators, etc. (say Majors and Captains). Officers picked for higher appointments on account of their skill and qualifications, but not holding the substantive rank appropriate to the appointment, should be appointed to paid acting rank during their tenure of appointment, or until they reach substantive rank through the combination of recommendation and effluence of time.

Appointments to, and retention of, posts in the teaching staff would have

to be so regulated and governed that the best teaching personnel would always be at the School and Hospitals, that the Army would not constantly lose its best teachers to the civilian schools, and that removals from the Staff would be effected only if the exigencies of the Service required such removal or if removal would be advantageous to the officer concerned (e.g. promotion).

The possibility of getting on to the teaching staff of the Army School would attract to, and keep in, the Army many doctors who at present do not take up permanent regular commissions because they are ambitious in the direction of teaching and the academic side of medicine.

With controlled and disciplined personnel at hand there should be a good opportunity to set up big Research Departments, especially in Physiology and Psychiatry.

(13) *The location of the Army Medical School* would have to be where there is always likely to be a big concentration of troops, in peace and war. The *clinical material* available would depend on the location; unfortunately from the teaching point of view the military clinical material is not enough, particularly in variety; to provide the variety necessary arrangements would have to be made for civilian patients to be admitted to the Army Teaching Hospitals; therefore the schools and attached hospitals would have to be where there is a big military population, a big military families' population and a bigish civilian population; preferably where there are inadequate civilian hospital facilities.

Aldershot and district would seem to be a locality which would provide the above conditions—the Cambridge and Connaught Hospitals, together with The Louise Margaret Families Hospital and Military Isolation Hospital seem to form the nucleus—a new hospital would be built to incorporate all these hospitals and to provide all the necessary hospital expansion required for the civilian population. The Hospital would cover all general medicine and surgery and all the usual special departments, together with Isolation, Mental and Tuberculosis Wings. Aldershot would be particularly suitable on account of the present location of the Army School of Health and the R.A.M.C. Depot and T.E. The Medical School and the Students' Messes and Hostels would have to be built close to the New Military Hospital Centre.

Aldershot is only a suggestion; another locality with shortage of hospital beds for civilians might be selected (providing it is close to a military centre), e.g. where a new satellite town is to be built. One might consider the York-Catterick area; whatever locality is selected it should be outside a target area. However, Aldershot at first sight seems to be the most suitable area from all points of view, including density of civilian population which is somewhere in the region of about 200,000 (Aldershot, Guildford, Woking, Farnborough, Farnham, Camberley, Godalming, Fleet, Sandhurst, Pirbright).

The setting up of an Army Medical School and Hospital Centre at Aldershot or any other suitable locality would have a profound effect on the future of Millbank, the R.A.M. College and the R.A.M.C. Mess.

One hospital at least would have to remain in London, and a Mess too; but, London being a good target in wartime, it is desirable that the teaching facilities, The Royal Army Medical College, should be outside where it can carry on without interruption for as long as possible; therefore the College should move to Aldershot or wherever the School is set up and retaining its designation "Royal Army Medical College." There should be a Mess in London, but whether the Headquarters Mess should stay in London or move to the Teaching Centre would have to be considered. It would seem desirable to get all the Medical Services Establishments grouped together, and that is why Aldershot seems so desirable. A move of the principal Hospital, the College and the Headquarters Mess out of London will be frowned upon by many, but would be for the general good of all ranks of the Medical, Dental and Nursing Services of the Army.

The setting up of a big Hospital Centre, equipped with the latest and best equipment, will be a most expensive project, but would be worth while on account of the benefit that would accrue to the Army and to the Art of Medicine and Surgery. A considerable part of the cost of a new site and building a new Hospital Centre could be met out of the proceeds from the sale of valuable sites in London, and elsewhere, which might become surplus to requirements as a consequence of the moves involved.

PART V.—INTEGRATION OF THE MEDICAL SERVICES

Integration of the Medical Services has been talked about from time to time for several years, and has cropped up again recently in "another place" and in the Press.

It is for consideration how far integration would go towards procuring a sufficiently strong and efficient body of medical officers for the Army; whether, in fact, integration would benefit the Army.

It is supposed that integration would not have cropped up again if there had been a sufficient flow of suitable medical officers into the Regular R.A.M.C.; can it be assumed that if the Army is made attractive as a career for doctors integration would not be a necessary expedient, nor would it be desirable? If a sufficient supply of doctors with regular commissions will not divert the advocates of integration from their cause, one is left enquiring what it is hoped to attain by integration, and how this will improve the Medical Service in the Army.

What is intended by integration of the Medical Services?¹ Some see in the idea nothing more than an arrangement whereby doctors would have comparable income for age + service + qualifications whether they perform professional duties in the Army, in the Royal Navy or Air Force, in the National Health Service or in one of the Colonial Medical Services; in other

¹One intention of the proposers of integration of the Medical Services of the Forces was to eliminate the triplication of overheads and large triple administrative staffs, particularly during war, when the shortage of trained man-power is so acute.—[Ed.]

words, integration would go only as far as cutting out undue financial attraction by one Service to the disadvantage of another; they envisage a scheme whereby a doctor serving in one Medical Service can voluntarily transfer to another (permanently or temporarily) and lose nothing in his pay or in his retired pay or pension.

Others hold that integration should go as far as the formation of one Medical Service for all three of the Armed Services; in such a service a doctor would have a career but would serve in ships, with regiments, at R.A.F. Hospitals and so on as required. They would all be members of, and promoted in, one Medical Service, a uniformed one, and there would be no question of commissioning in the Royal Navy, the Army, or the Royal Air Force—the commission would be in the Medical Service. Perhaps the advocates of integration of the Naval, Military and Air Force Medical Services should wait until there is integration of all three of the Armed Services into one.

Then there are those who would go farther still and have integration to mean one complete Medical Service to cover Civilians, fighting Services, and Colonial Services, in which the doctors would be available for service anywhere, sometimes in the uniformed branch and sometimes in the un-uniformed branch. Some would allow a certain amount of freedom of choice so that the doctor could choose between the uniformed or un-uniformed as a career, others would allow no such freedom.

Is integration desirable or necessary? Would it be advantageous to the Army? When we come to these considerations we enter a battlefield on which are engaged the advocates of integration *versus* the opponents of integration. The Advocates are labelled as being infected by the bug of standardization, the substitution of economy for efficiency, the undermining of tradition, and so on. On the other hand, the Advocates say that the Opponents are actuated only by self-interest, that the Opponents do not want integration because they will lose their high ranks and appointments and will cease to be kings in their little domains. This is an age of economy rather than efficiency, and of expediency; in attempting to determine the virtues of integration or *status quo* care must be taken not to fall into line with the conventions or habits of the day, but rather to determine what is going to be best in the long run for the Army—FOR THE ARMY it should be noted (our counterparts in the Navy and Air Force should act similarly for their Service)—the Armed Services must not be treated as a minority and be required to accept what is considered suitable for the majority—this is very important; the Armed Services must not be subordinate to the whole. The question is, what does the Army require of its Medical Service and will that requirement be best found by integration?

Would integration, in any form, provide the Army with the sort of medical officer required; the man who is the doctor, who has prevention to the fore, who knows how to handle officers and men; who, by his own experiences, knows the factors influencing the lives of soldiers; who can handle medical

units in battle; who will have the confidence of Commanders so that he is called into the highest conferences and deliberations? It may be felt that in the Navy and Air Force the general run of medical officers could be found from short term seconded doctors, doctors from civilian practices without much Naval or Air Force background; in the case of the Army the medical officers have to be trained for command, for a good deal of administration, for tactical use of units in the field—medical officers without considerable military background might not fit in so well.

One is well aware of the fact that a good many Territorial and Emergency commissioned medical officers rose to great heights during the Second World War and were in many cases most competent and knowledgeable; but was not a deal of their success due to the training they had received at the hands of Regular officers, and to the advice and support accorded them by old hands, senior and junior to themselves? Would the Medical Services of the Army have achieved what they did if there had not been that solid backbone of regular officers who had made the Army a career?

Whether or not partial or complete integration will solve all the problems of medical arrangements for the Army is a vast subject for discussion and consideration; it may; but it should not be advocated light-heartedly without due regard for all the circumstances and implications; it should not be implemented unless it is certain that the best interests of the Armed Forces, and particularly the Army, will be served. And the doctors themselves, who have to work the services, must not be forgotten. It is possible that the interests of the Civilian Medical Practitioners themselves would not be served by complete integration—and their interests must be considered; we are not, yet, a totalitarian state in which the interests of the individuals working for the State have to be subjugated and conform to a Plan.

Unless and until it can be shown that integration is the answer to the Army's prayer, then all must be done to make the R.A.M.C. itself as attractive as possible.

A paper entitled "Reorganization of the Medical Services of the Armed Forces" by Major E. A. Smyth, R.A.M.C., and published in the *British Medical Journal* of October 1, 1949, is worthy of consideration.

At Random

SMALLPOX AND VACCINATION

IN reference to the recent outbreak of Smallpox at Brighton we received, somewhat to our admitted astonishment, a two-page article by a protagonist of antivaccination on the subjects of scaremongering and the iniquity of trying to scare the population into accepting vaccination. The article appears to have three objectives: a diatribe against vaccination of any kind, indignant protest against scaremongering in order to try to enhance the seriousness of the risks and accusation against the officers of the Ministry of Health because they, not unnaturally, have been endeavouring to carry out their job of safeguarding the health of the general population.

Quotation of extracts is open to criticism on the grounds of bias or distortion of original meanings, but we think certain relevant abstracts may not be without interest to those who really realize the potential risks on this occasion. The author endeavours to bolster up the case for withholding the protective safety of vaccination, quite forgetful of or completely ignoring the fact that we in this island still fortunately enjoy, in spite of many efforts to the contrary, a very considerable measure of general protection against smallpox due to the existence over the past forty or fifty years of a reasonably well-vaccinated state in the community.

Here is what happened.

An officer flew from Karachi to Leuchars in Fifeshire and from there travelled to Brighton on November 29, 1950. For the next twelve days he resided in the town. He had been repeatedly vaccinated, the last time in October 1949.

In the train travelling South he felt poorly and developed a rash on December 3.

Only when two other people were found to be suffering from smallpox (diagnosed on December 28) was this officer also removed to a smallpox hospital—on December 28, and was diagnosed as a mild case of smallpox masked by recent vaccination.

Eventually the following cases were admitted to hospital. Four on Dec. 28; two on Dec. 30; three on Dec. 31; four on Jan. 2; one on Jan. 4; one on Jan. 6; two on Jan. 9; four on Jan. 10; two on Jan. 11; three on Jan. 12; one on Jan. 21; and one on Jan. 22. (The last two were said to be children of an earlier case or cases.) The article then claims that:—

All the rest of the contacts were obviously not infected. Subsequent vaccination would have been useless had they been infected. Twenty-two persons vaccinated after exposure to infection developed smallpox and nine of them died. It was not vaccination that stopped the outbreak, but simply isolating smallpox cases and watching the close contacts. If nothing at all had been said in public about the outbreak and not a single person had been vaccinated, it would have been as limited as it proved to be in the event.

Anyone who has seen and dealt with a serious epidemic of smallpox in an unvaccinated population with its numerous intensely virulent cases, with its disfigurement and blindness, as no doubt many senior members of the Service have, can be only too thankful for Jenner's discoveries and teachings and the

sound sense of Government Health Departments over the past fifty years in this country.

Anyone who has watched how the protagonists of anti-this, -that and -the other, rush for protection of this, that and the other scientifically correct protective measure when an epidemic does occur must laugh at or view with amusement, doubt or irritation, the specious arguments of "anti-bodies" so loudly proclaimed when risks are small.

For the sake of the peace of mind of our future Service Medical Administrators and the well being of our Departments of Army Health and for the reduction of unnecessary work for overworked regimental medical officers we trust that the Armed Forces of the Country will never succumb to these specious arguments and neglect or allow to fall into disuse by neglect that one sound protection of our personnel on foreign service against smallpox, that protection of adequate vaccination and inoculation. Perhaps the Statisticians of our Department of Army Health who are said to be able to prove anything from nothing or nothing from anything (?) would care to produce an article for the Journal to show the present benefits of present vaccination states.

Protective vaccination has long been enjoyed or at least been believed in and in force in the Services. In Volume I of our Journal when Lt.-Colonel R. H. Firth was Editor in July-December 1903 there is an extremely interesting account of the "Production of Vaccine at the Army Vaccine Institute, Aldershot," by Veterinary Major E. R. C. Butler, Army Veterinary Department.

In the year ending March 31, 1903, sufficient vaccine was made for 132,480 persons of which 92,105 doses went to the Army and 40,375 to the Royal Navy. The total supplied since the opening of the Institute was 978,203 doses.

The percentage of successful vaccinations was as follows:

	Army		Navy
	Home	Foreign	
Primary Infants	87.61	46.07	92.5
Others	93.34	31.88	100.0
Re-vaccination	90.31	33.58	61.91

But the writer notes that even in those days there was considerable difference in personal technique and successes.

(1) In the same Station, using the same lymph at the same time, one M.O. had 42 per cent, another $4\frac{1}{2}$ per cent failures in more than 200 cases each.

(2) During the year one M.O. using seven different supplies of lymph had 76 per cent failures in 42 cases but another had 0.3 per cent failures in 1,000 cases.

Colonel Firth in his editorial comments on the care of manufacture, the results and the technique of glycerinated and chloroformed lymph. He ends by saying that the process, procedure and results cannot fail to be of interest to all who adopt this great Jennerian prophylactic.

Long may we in the Services agree with Colonel Firth in spite of the arguments and actions of the anti-vaccinationists.

Clinical and Other Notes

ROYAL NAVAL TROPICAL RESEARCH UNIT

(Medical Research Council)

Faculty of Medicine, University of Malaya, Singapore.

SUMMARY OF ACTIVITIES — JANUARY 1949–JULY 1950

THIS laboratory was established in 1948 by the Medical Research Council's Royal Naval Personnel Research Committee for the purpose of investigating in the tropics the effects on human efficiency of working in warm environments. These investigations are a direct extension of exploratory studies carried out from 1944 onwards at the Council's Hot Climate Research Unit at the National Hospital, Queen Square, London (now dissolved), and Applied Psychology Research Unit, Cambridge.

Since January 1949 experiments have been continued at Singapore by two groups of investigators—physiologists and psychologists—who are concerned respectively with the measurement of the effects of varying temperature conditions on (1) human physical ability to withstand excessive warmth and (2) the level of performance achieved by men engaged in work requiring different types of skill.

STAFF AND ADMINISTRATION

The Unit is directed by Surgeon Commander F. P. Ellis, Royal Navy. The physiological experiments are supervised by Dr. R. K. Macpherson of the Scientific Staff of the National Institute for Medical Research and the psychological studies of Mr. R. D. Pepler of the Applied Psychology Research Unit, Cambridge. The work of these sections is associated closely with contemporary investigations at the Council's Units for Research in Climatic and Working Efficiency at Oxford, and Applied Psychology at Cambridge, and at the National Physical Laboratory where improved methods for measuring the various components of the thermal environment are being developed.

The Unit is an Admiralty civil establishment, but the Medical Research Council accepts responsibility for the appointment of the senior scientific staff and for ensuring adequate scientific co-ordination with other research groups. Interservice liaison is secured by the attachment to the permanent scientific staff of Major J. M. Adam, R.A.M.C., of the War Office Medical Research Pool and Professor G. P. Crowden and Major A. J. Buller of the Military Personnel Research Committee have attended during experiments of a military character as War Office observers.

Other workers who participate in the research include Professor R. G. Scott MacGregor, Mr. Lee Teow Seng, and Mr. Yap Tien Beng of the Physiology Department of the Medical Faculty and Dr. You Poh Seng of the Department of Economics of the University of Malaya.

RESEARCH

Physiology.—During three long investigations (lasting four months, four-and-a-half months and five months) the physiologists have observed three different groups, each of 15 men, who were exposed to widely varying combinations of air temperature, humidity and air movement whilst carrying out our standardized work and wearing standardized clothing. Between 1,700 and 1,800 “4 hour-man” experiments have been carried out. The main emphasis has been laid on observing adequate numbers of subjects (a minimum of 3 for each set of conditions investigated), as individuals vary considerably in their reactions to climate. The observations have been confined therefore to procedures which were relatively simple technically and consisted in the main of measurements of body temperatures, pulse-rate and sweating rate and clinical assessment of fitness, in conjunction with occasional analyses of sweat and urine.

Much of the data which has been obtained up to now is being analysed in London at the Medical Research Council's Statistical Research Unit and in the Statistical department at the University of Oxford. The collated results are not yet available, but it is hoped that sufficient has been done to provide a broad outline of the reactions of young men, naturally acclimatized to the tropics, to work at high temperatures for relatively short periods (four hours).

In future the scope of experiments will be restricted to more limited objectives which will permit the use of more elaborate experimental techniques. It is the intention to examine the effects of radiant heat in addition to the effects of repeated exposure to high temperatures, the effects of sleeping at one temperature and working at another temperature and the quantitative relations of the thermal exchanges which take place between a man and his environment when naked or clothed in different ways.

In addition to this fundamental work some research of an applied nature has been undertaken which has included a preliminary survey of comfort sensations in relation to thermal conditions afloat in H.M.S. *Unicorn*, and experiments to determine the physical reactions of men who have to work in a jungle climate to various prototype uniforms developed for the Ministry of Supply and the United States and Indian Armies, and to the British jungle uniform used by the Army in Malaya now. The latter experiments are of naval interest also, however, as the material of the new suit produced by the Ministry of Supply is the material which was recommended by the Medical Research Council for use by the Navy during the war for the manufacture of a tropical “action and working” dress.

During periods when investigations on naval ratings were not convenient experiments were arranged in conjunction with the Physiology Department of the University to measure the comparative reactions to heat of Chinese, Malay and Indian subjects under identical conditions to those to which the British sailors were exposed. Other studies were concerned with the measurement of basal physiological values for young men acclimatized to the tropics. All the naval subjects who passed through the Unit before February 1950 were observed for five days before they took part in any experiments and their basal metabolic rates, resting pulse-rates and blood pressures were determined on waking in the morning and full blood examinations were carried out. These observations extended a long series commenced by Professor Scott MacGregor in Singapore before the war. The data obtained which are being collated now will probably constitute one of the most comprehensive surveys of this kind to have been carried out under controlled conditions in the tropics, and will provide a valuable background for future climatic studies.

Psychology.—The examination of the effects of temperature on performance and alertness has been confined to experiments involving three techniques developed during the war at Cambridge. The first of these is a test for men keeping a prolonged lookout and is known as the “clock” test. The subject watches the jerky movements of a clock finger which makes a double jump at irregular intervals. When he sees this double jump he presses a contact button and a recording mechanism indicates whether or not he has seen the signal and also the length of any delay in response. The second test requires the use of an instrument known as the “pursuitmeter,” and is a test of “tracking” ability. The subject manipulates a handle which controls the movements of a pointer with which he has to follow the movement of another pointer which is controlled by the machine. The degree of his failure to align the pointers accurately is recorded numerically by the machine. The third test is to record the errors made by trained wireless telegraphy operators in the reception of automatically transmitted morse messages. This test is particularly promising as the naval ratings who take part in it are highly trained for the work, in that they are already accustomed to receiving anything up to 300 to 400 auditory stimuli each minute and translating them into written symbols.

In addition volunteers for the experiments are examined by the psychology section with techniques which provide information on their intelligence levels which supplements the background of physiological values referred to above.

When the wireless telegraphy experiment is completed in September, the preliminary task of the physiology and psychology sections, to re-examine in the tropics the results of experiments on “artificially acclimatized”¹ men

¹Men previously accustomed to work at high temperatures by daily exposure for several weeks.

carried out in England during the war, will be completed. The next year or year and a half's work will be devoted to extending the scope of these earlier studies, and linking them more closely with the practical situations in ships.

ASTRONAVIGATION

BY

Colonel F. M. RICHARDSON, D.S.O.

Late Royal Army Medical Corps

THE average soldier's knowledge of Stars or Heavenly Bodies is confined to the "pin-up" pictures in his billet, but if his interest in the more cold and distant variety can be stimulated it will obviously be of great value to him as an aid to navigation by night. One's position can be fixed astronomically to within a hundred yards by experts, and by less expert people to within about a mile, provided the necessary time and equipment are available. We do not of course need to be so highly trained as this but a certain amount of knowledge of the Stars is invaluable for Direction keeping in Night marches. Stars can be used either alone or combined with the use of the compass as navigational aids. The most convenient guiding mark during a night march may be a star, in fact on a very dark night a star may be the only possible guiding mark. No knowledge of astronomy is needed in order to be able to choose a star on the required bearing, but unless one keeps one's eyes constantly fixed upon it, which is extremely tiring, it is very easy to lose the chosen star and to march on another and possibly misleading star. If, however, one has a little knowledge of Stars and Constellations and can fix in one's mind the position of one's guiding star in relation to some well-known star or constellation this risk of getting it confused with others is greatly reduced. For a guiding mark one should select a star between 10 and 15 degrees above the horizon. Below 10 degrees stars tend to be lost in haze, whilst those above 15 degrees may change their bearing more rapidly, and if they are used the bearing must be checked more often. In this connexion it is convenient to remember that the altitude of the Pole Star above the horizon is always equal to the latitude of the place from which it is observed, e.g. from the latitude 30 degrees the angle from the Pole Star to the eye and the horizon is 30 degrees. Degrees can be roughly measured by using the outstretched hand in which the distance between the fully extended fingers is about 18 degrees. With the clenched fist the distance from the first to the second knuckle-joint is about 3 degrees, from the first to the third knuckle-joint 5 degrees, and from the first to the fourth knuckle-joint 8 degrees. Easterly stars are always rising and westerly ones setting, so that when marching East one should choose a new star when the first choice gets

too high, and when marching West one chooses a new one when the first one sets.

Human beings have an inherent tendency to go round in a circle at night, usually a left-handed one, and to finish up somewhere near where they started. This tendency was accentuated in the Desert where it was amazingly easy to lose one's way at night. In a widely dispersed camp it was not at all uncommon for people to lose their way when trying to go from the mess tent to their bivouac tent and to wander about most of the night, or even to finish up miles away from home, where they despondently awaited the dawn. Many people used to observe before dark the compass bearing from their tents to the mess or to the latrines, but to use the stars was often easier. The tendency to go in circles is also marked in mountains where in addition one seems to tend to follow the line of least resistance and to drift gradually downhill rather as a tennis ball would do if rolled along a slope. These tendencies can be overcome by study of the Stars, and it is necessary only to know a few easily identified constellations. Only by constant practice at different times of the night and in different seasons can one become at all proficient, unless one should have the opportunity of a period of intensive study in a Planetarium, which is a building in which by means of intricate machinery the movements of stars and planets are projected upon the ceiling, and a whole year can be passed through in a shorter or longer period according to the rate at which the machine is run. In order to be able to train men in this subject one should obtain a star chart, and study it with the help of some simple book on Stars. Military Training Pamphlet No. 13 (India), "Navigation by the Stars," was a very convenient book for the purpose.

The following paragraphs and the accompanying illustration indicate the extent of knowledge of this subject which will be enough for our purpose.

Stars twinkle with their own light whilst Planets glow with a steady reflected light. The Stars and Planets visible in the sky and their position in the sky at any particular hour vary with the season. Constellations not only travel across the sky but tend to tilt on their own axes. But despite these constant variations in position their positions in relation to one another remain constant. Thus if you have a star chart and can identify one or two stars or constellations you can set the chart, as you set a map, and find others.

The movement of the Stars and the variations in the picture presented by the night sky can be explained as follows. Owing to the rotation of the Earth the Stars behave like the Sun, rising generally in an Easterly direction and setting towards the West. The Meridian is an imaginary line from the pole due North, to the Zenith, which is the point directly overhead, and continued till it meets the horizon at a point due South of our position. A Star is said to be full up when it crosses the Meridian: before reaching it it is rising, and after crossing it it is setting. Certain Stars which are visible at one season of the year may at another season have risen and set before darkness and so are invisible.

The Pole Star which is always within a few degrees of True North is a

focal point round which all neighbouring Stars and Constellations appear to move in circles, and thus in the Northern Hemisphere the sky shows a picture of a focal point in the North round which certain conspicuous constellations revolve, whilst in the rest of the sky, especially towards the South, stars rise in the East, move across the sky, and set in the West.

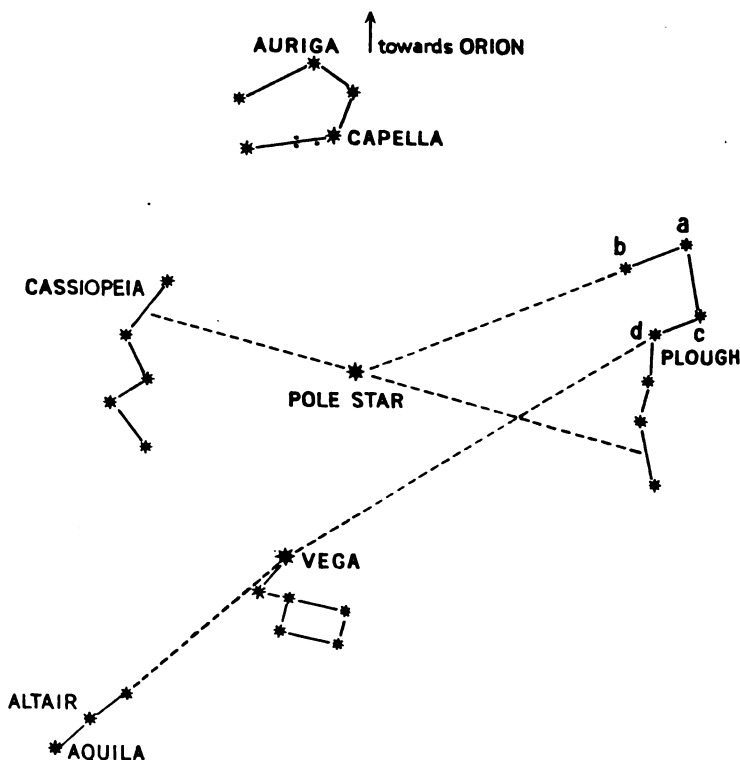
The Stars and Constellations recommended as being of most value in night navigation are the *Pole Star*, *Capella*, *Vega* and *Orion*. The Pole Star is the most valuable and important, because in the Northern Hemisphere one can always see it, weather permitting, and some of the Constellations circling round it, and because it always remains fixed.

CONSTELLATIONS IN THE NORTHERN SKY

This rough illustration shows:—

- A: The four Constellations which surround the Pole Star in a great square in the Northern sky and shows how the four useful Navigational aids can be identified.
B: How to tell when the Pole Star is in the Meridian.

A (i) It is essential to be able to recognize the Pole Star not only in the best-known way by the "Pointers" of the Plough—(a) and (b)—but also from *Cassiopeia*. These two Constellations revolve round the Pole Star, and when East and West of it both are visible. When they are above and below it only one is visible, but one of the two is ALWAYS visible. Hence the importance of being able to find the Pole Star from Cassiopeia.



(ii) *Capella* is a very bright star in the Constellation *Auriga*, which is a sort of irregular semi-circle of bright stars. On isosceles triangle of faint stars lies close to *Capella*. *Capella* lies almost half-way between the Pole Star and Orion.

(iii) *Vega*, a very bright star in the Constellation *Lyra* lies exactly opposite *Capella* on the other side of the Pole Star. A parallelogram of faint stars lies close to it, and the line of three stars forming the Constellation *Aquila* if continued for about three times its own length reaches *Vega*. *Altair* is the bright star in the middle of *Aquila*. The stars marked c and d in the Plough also point to *Vega*.

(iv) The Constellation *Orion*, the most conspicuous in the Southern sky, is easily recognized by Orion's Belt, a line of three stars in a quadrilateral of bright stars. It lies on the other side of the Pole Star from *Vega*, and about twice as far from the Pole Star as *Vega*.

B. The Pole Star is in the Meridian—i.e. true North—when the point half-way between the two end stars of the tail of the Plough is vertically above or beneath it. The same applies to the point half-way between the two stars forming the flattened limb of the "W" or "M" of the Constellation Cassiopeia. See the dotted lines on the diagram.

These Stars and Constellations are easily recognized, and from them with the aid of a star chart others can be identified; but for most practical purposes if one knows only these one should be able to keep direction during night marches.

Arcturus, which next to *Capella* and *Vega* is the brightest star in the Northern Hemisphere, can be found by following the sweep of the Tail of the Plough for a little over twice its length.

Sagittarius and *Scorpio* are easily recognized in the Southern sky for a Southward march. The bow of *Sagittarius* the Archer in the edge of the Milky Way points its arrow into the body of the Scorpion with its upturned tail.

Planets "wander" and therefore cannot be shown on star charts. *Jupiter* and *Venus* are very bright, *Venus* appearing only in the East and West, and *Jupiter* being usually high up in the sky. *Saturn* is very pale, and *Mars* has a reddish tint.

Matters of Interest

BRIGADIER J. S. K. BOYD, O.B.E., M.D., M.R.C.P., D.P.H., D.T.M.&H., has been elected a Fellow of the Royal Society. He is the 39th member of the Corps to receive this honour and he joins the band of officers who have distinguished themselves in science and which includes the names of Pringle, Hunter, Lewis, Bruce and Leishman.

Brigadier Boyd, who is now Director of the Wellcome Laboratory of Tropical Medicine, was Director of Pathology from 1945 to 1946, and since 1946 has been a member of the Council and Honorary Secretary of the Royal Society of Tropical Medicine and Hygiene. He is the first regular officer of the Army Medical Services to become a Fellow of the Royal Society since Lt-Gen. Sir

William Leishman, who was a Director of Pathology from 1919 to 1923, and Director-General, Army Medical Services from 1923 to 1926.

Brigadier Boyd served from October 5, 1914, to January 1, 1947. He received his M.D. in 1948 and M.R.C.P. in 1950.

Brigadier A. Sachs, Director of Pathology, writes:

"Brigadier Boyd's best-known work is probably that on the antigenic structure of the mannite-fermenting group of dysentery organisms, and his name is associated with several new types discovered in India. It was largely as a result of his personal investigations in 1938 and 1939 that tetanus toxoid was introduced in the British Army for active immunization against tetanus.

"During the war he was D.D.P. at G.H.Q., Middle East, from 1940 to 1943 and later D.D.P., 21 Army Group, until the end of 1945. It was largely due to his personal efforts and those of Professor Buttle that the Transfusion Service functioned so well in the Middle East and B.I.A. While D.D.P. in Middle East he produced evidence to show that the immunizing power of the British T.A.B. vaccine was superior to that of the vaccines prepared by the Germans and Italians.

"It was most appropriate that the announcement by Sir John Taylor of Brigadier Boyd's election as a Fellow of the Royal Society was made prior to the opening of the Laboratory Meeting of the Royal Society of Tropical Medicine, held in the Pathology Department of the Royal Army Medical College on March 15, 1951, where he had spent so many years carrying out the various investigations with which his name is now associated. It is a coincidence that this announcement was made on the eve of the Jubilee of Leishman's Stain on March 16, 1901. On that date Major W. B. Leishman contributed the first of two papers to the *B.M.J.* on the modifications of Romanovsky's staining of blood smears to show malaria parasites."

LIEUT.-COLONEL J. M. MATHESON, Royal Army Medical Corps, British Army Medical Liaison Officer to the Surgeon General's Office, United States Army, from October 1948 to November 1950, has been commended by the Chairman of the Tripartite Committee on Standardization of Certain Aspects of Operations and Logistics to Armed Services Field Medical Material Group, for his valuable work as a member of that committee.

POSTINGS

LIEUT.-COLONEL H. E. KNOTT has been posted as Commandant of the Army School of Health as from March 1 in succession to Colonel F. C. Hilton-Sergeant who has taken over command of the Connaught Military Hospital, Hindhead, from Lieut.-Colonel C. B. R. Pollock.

Colonel L. Handy has gone from the Cambridge Military Hospital, Aldershot, to the P.S.M.B. at Headquarters Southern Command, his place at Aldershot at the Cambridge being taken by Lt.-Colonel V. C. Verbi.

The following summary shows postings of Officers during February 1951.

<i>Rank and Name</i>	<i>From</i>	<i>To</i>	<i>For duty as</i>
Colonel R. Murphy	Depot and T.E. R.A.M.C.	F.A.R.E.L.F.	Director of Medical Services
Lt.-Col. C. A. de Candole	R.A.M. College	Canada	Secondment to the Depart- ment of Defence
T/Lt.-Col. G. B. Heugh	R.V.H. Netley	15 Fd. Amb.	Officer Commanding
Lt.-Col. F. King	H.Q. Western Command	5 Fd. Amb.	Officer Commanding
Lt.-Col. S. G. M. Lynch	H.Q. Western Command	6 Fd. Amb.	Officer Commanding
Lt.-Col. R. D. Menzies	Cambridge Military Hospital	4 Fd. Amb.	Officer Commanding
Lt.-Col. J. D. F. Murphy	Ex B.A.O.R.	R.V.H. Netley	Officer i/c Psychiatric Division
Lt.-Col. R. A. Stephen	Ex M.E.L.F.	Cambridge Military Hospital	Officer i/c Surgical Division
Major I. E. Harries	Ex B.A.O.R.	R.H.H. Woolwich	Specialist Anaesthetist
T/Major T. J. Ryan	M.H. Colchester	Gibraltar	Specialist Physician
Lt.-Col. J. Shields	H.Q. A.A. Command	M.E.L.F.	

TOURS AND VISITS

THE Director-General has recently completed a tour of West Africa, which lasted fourteen days.

With Brigadier Creagh, the D.D.M.S. West Africa, he inspected the military hospitals at Freetown, Accra, Lagos and Kaduna. These are staffed by British officers and N.C.O.s of the R.A.M.C. and R.A.D.C., and African N.C.O.s and men of the West African Army Medical Corps. The West African Army Medical Corps has recently been reorganized and has received permission to wear new items of uniform, including a *Zouave* jacket of cherry colour which brings it into line with other units of the West African Frontier Force. The W.A.A.M.C. is organized into four companies with headquarters at each of the four hospitals.

British officers and N.C.O.s are now allowed to take their families out with them and the health is on the whole satisfactory in a climate which is rather similar to that of Malaya. Paludrine is taken daily. The tour for personnel in West Africa is now three years with a period of mid-tour leave of three months.

In addition to hospitals, inspections were arranged of the Sierra Leone Regiment at Freetown, the Gold Coast Regiment at Accra and Takoradi, the Nigerian Regiment at Kaduna and other military establishments such as the Command Training School at Accra and the Central Supply Depots.

The civil hospital at Accra was visited. This is a 400 bed hospital with excellent accommodation under the Colonial Medical Services.

A visit was also paid to the Tsetse Fly Research Institute at Kaduna, a Government institution under Dr. Nash which has recently been opened, and which will undertake research on a large scale on all aspects of human and animal trypanosomiasis.

The Countess Mountbatten of Burma was also carrying out a tour of West Africa during the same time as the D.G.A.M.S. and during her tour Lady Mountbatten visited all the military hospitals with special reference to the welfare work.

OUR D.G. was invited to speak to the Commonwealth doctors at London House, Bloomsbury, on February 13 on "Post-war Problems in the Army Medical Services."

THE Hunterian Festival Dinner was held at the Royal College of Surgeons on Wednesday, February 14. The Hunterian orator was Major-General Sir C. Max Page, and during the dinner his health was proposed by the Vice-President of the Royal College of Surgeons, Major-General P. H. Mitchener, and the Director-General A.M.S. was also present.

At a presentation of the Gold Medal of the Royal Society of Apothecaries to Professor E. C. Dodds, Professor of Biochemistry at the Middlesex Hospital, in the Apothecaries Hall on Tuesday, February 20, the Director-General was amongst those present at the ceremony.

REGIMENTAL GUEST NIGHT

A REGIMENTAL GUEST NIGHT was held in the Headquarter Officers' Mess on Thursday, March 29, 1951.

Major-General J. J. Wagner and Brigadier H. T. Findlay were "dined out," the following guests also attended:

Major-General L. D. Grand, Director of Fortifications and Works.

Colonel K. E. Pletcher, Assistant Air Attache, United States Embassy.

Dr. Andrew Topping, Dean of the London School of Hygiene and Tropical Medicine.

Dr. John Owston, P.M.O. Ministry of Supply.

Dr. H. P. Himsworth, Secretary, Medical Research Council.

The orchestra of the Band of the Welsh Guards played during dinner.

The health of the guests was proposed by the Director-General who paid a

tribute to the distinguished service rendered in the Corps by Major-General *Magner* and Brigadier *Findlay* to whom he conveyed our best wishes on their retirement. The Director-General described the distinguished careers of these two officers in illuminating detail, commencing their story in the far-off days of 1914 and 1915. We heard of General *Magner's* unusual experience with the White Russians (or should it have been Pink Russians?), and were told how that virile race overcame the difficulty of not being able to fish in the winter. We learned how General *Magner* narrowly escaped an assassin's bullet in the Sudan, and how he got his own back on the would-be assassins when detailed to assist in their "exit via *Lethe*."

And so the saga continued up to the days of General *Magner's* good work at the Depot at *Beckett's Park* and finally in his appointment as D.D.M.S.

The Director-General then turned his attention to Brigadier *Findlay* and told us how he so ably maintained the Corps reputation in the field of pathology, a reputation built up by *Bruce*, *Leishman* and *Boyd*. We learned of his early adventures in *Sierra Leone*, and his valuable contribution to preventive medicine at the Army Vaccine Laboratory.

Both General *Magner* and Brigadier *Findlay* responded with entertaining speeches, and those of us present who are still junior in the Corps must have been impressed by such glimpses of the varied and interesting careers which lie open for the R.A.M.C. Officer.

When welcoming the other guests the Director-General mentioned Dr. *John Owston* who had delivered a College Lecture on the subject of "Rocket propellants" earlier in the evening; he felt that we in the Corps were not unfamiliar with the technique of discharging and receiving "rockets," and that the propellants well known to us were both powerful and varied.

M. M. L.

A VISIT TO THE WEST AFRICA COMMAND

BY BRIGADIER E. P. N. CREAGH, D.D.M.S., H.Q., W.A.C.

THE West Africa Command has just been honoured by simultaneous visits of two very important persons—the Director-General of Army Medical Services and the Countess Mountbatten of Burma, as Chairman of the Order of St. John of Jerusalem and the British Red Cross Society Service Hospitals Welfare Department. Their time tables were quite different but they met twice, once in *Accra* and once in *Lagos*.

The Director-General arrived from *Dakar* by air at *Lungi Airport* near *Freetown* on the morning of January 26, and was met by the D.D.M.S. West Africa Command, the District Commander, Brigadier B. J. D. *Gerrard*, D.S.O., and the S.M.O., *Sierra Leone* and *Gambia* District, Major A. S. *Cox*, R.A.M.C. He and the D.D.M.S. were entertained during their stay at *Flagstaff House*. A full programme of inspections of the Military Hospital, *Freetown*, and other

units was carried out next day. There was very pleasant bathing at Lumley and Juba beaches in the late afternoons.

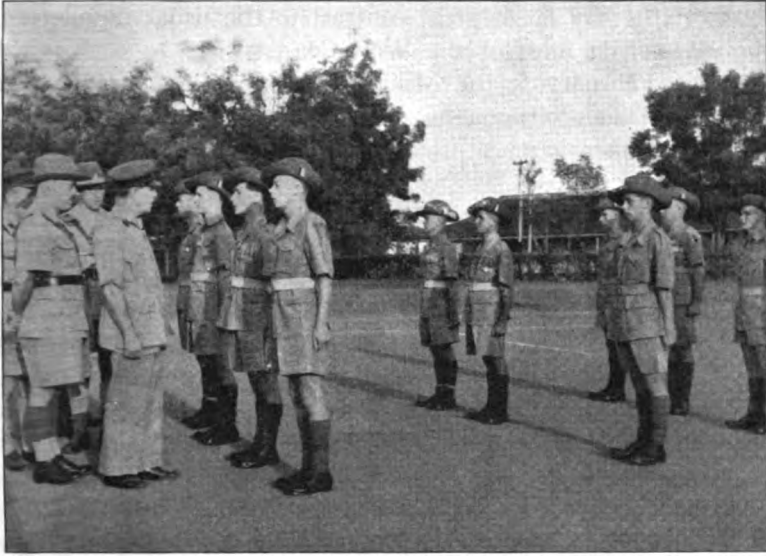
Major Elverson, R.A.M.C., as the result of a recent illness embarked as an invalid for the United Kingdom on the very day of this inspection, a most unfortunate coincidence. His good work over the last three years in this District has recently been rewarded by the *M.B.E.* He has been replaced by Major A. S. Cox, R.A.M.C., recently arrived from B.A.O.R.

On the following day the Director-General recrossed, in a high-speed launch, the harbour so well remembered by so many in the War, and flew to Accra in a Viking aircraft, where he was welcomed by the Acting District Commander, Lieut.-Colonel J. R. V. Thompson, S.M.O., Gold Coast District, Lieut.-Colonel W. B. F. Brennan, R.A.M.C., the Staff of Medical Directorate, the wife and daughter of the D.D.M.S. and Mrs. Brennan. Next morning he was received by the G.O.C. in C., Lieut-General Sir Cameron G. C. Nicholson, *K.B.E., C.B., D.S.O., M.C.*, at Giffard Camp, the Headquarters of West Africa Command and dined at Flagstaff House that night as the guest of the G.O.C. in C. and Lady Nicholson.

The next three days were filled by inspections, visits and discussions on army health and other matters with the D.D.M.S. and the A.D.A.H., Lieut.-Colonel D. D. Maitland, R.A.M.C. In the afternoons visit to civil hospital in Accra, surf bathing, watching polo with cocktail and dinner parties at night. A lesser man might have felt the strain, but not the Director-General whose energy and stamina are well known. He inspected a smart parade of No. 3 Company, W.A.A.M.C. at the Military Hospital, Accra, and subsequently addressed all personnel on parade. He visited H.E. the Governor of



March past of No. 3 Coy. Accra.



B.N.C.O.S. No. 3 Coy. Accra.

the Gold Coast, Sir Charles Arden-Clarke, *K.C.M.G.*, who kindly showed us round his residence, the ancient Danish Christianborg Castle.

On Thursday, February 1, he drove with Lieut.-Colonel W. B. F. Brennan, *R.A.M.C.*, and his wife the 170 miles to Takoradi, lunching *en route* with the Chief Commissioner for the Colony at Cape Coast and seeing Cape Coast and Elmina Castles, with their dungeons for the old slaves before they were shipped to America. He inspected the 3rd Bn. Gold Coast Regiment and the Medical Reception Station, and visited the civil hospital at Takoradi. His return from Takoradi to Accra was planned by air but he was so impressed by Lieut.-Colonel Brennan's "Jaguar" that he returned by road, arriving in time to dine with him and the officers of the Military Hospital, Accra, in their mess—a very pleasant evening, to the accompaniment of the Gold Coast Regimental Band.

Next day it was off again by "Hermes" to Lagos where he was the guest of the G.O.C. Nigeria District, Major-General C. B. Fairbanks, *C.B., C.B.E.*, and his wife in their well-situated house on the edge of the deep water channel leading into Lagos harbour. On the evening of arrival he was entertained at a cocktail party by Major G. M. Clark and the officers *Q.A.R.N.C.*, and subsequently dined with Major C. McNeil, *R.A.M.C.* (acting Officer Commanding in place of Lieut.-Colonel A. L. Pennefather, *R.A.M.C.*, on leave in England) and the Officers of the Military Hospital, Lagos; the acting Director of Medical Services Nigeria, and several of the other senior doctors of the Colonial Medical Service were present—a very pleasant party.

The following day, Sunday, was his only day of rest in the fortnight and was pleasantly spent bathing in Tarqua Bay as the guest of the G.O.C. The

calm waters of this bay are a great contrast to the usual thundering waves, beloved by surfers, on most of the West Coast.

On Monday, February 5, the Military Hospital, Lagos, and other units were inspected. That afternoon he spent exploring Lagos and later we had a very pleasant dinner party at the G.O.C.'s house, at which the Countess Mountbatten was present.

Next morning an early departure by plane, this time a small De Havilland Dove, to Kaduna two and a half hours by air, and a very different country, hot, dry and burnt up. Here the Director-General was the guest of the Commander North East Sub District, Brigadier E. A. P. McPherson, *M.C.*, and dined with H.H. the Commissioner of the Northern Provinces Sir Eric Thompstone. Next day many more inspections were carried out, including of course the Military Hospital, Kaduna, a 150 bedded hospital, commanded by Lieut.-Colonel D. Matheson, *R.A.M.C.* He and his officers gave an excellent cocktail party to meet the local Commanding Officers and members of the Colonial Medical Service. He inspected a smart parade of No. 2 Company, *W.A.A.M.C.*, and the band of the 2nd Bn. Nigeria Regiment in the early morning. Kaduna is the largest military station in the command.

The new home of "Waiter" (West African Institute of Trypanosomiasis Research) has just been completed in Kaduna and the Director-General visited it on the morning of his departure for Kano and the "Hermes" aircraft for London. The afternoon at Kano was spent in a tour of this ancient walled city.

At all four hospitals the Director-General talked to officers and *B.N.C.O.s* in their messes, this was very much appreciated by everyone.



H.Q. West African Command.

It is felt that this visit, entailing such sustained energy by the Director-General, has done an immense amount of good to the Medical Services of the Command.

In one respect he was lucky—the climatic conditions during his visit were particularly good and, in fact, far better than those we are generally subjected to in January and February.

On reading the account of his tour in East Africa by Brigadier MacNamara in the October 1950 issue of the *Journal* one feels rather sad that we had nothing like that—wonderful scenery, with Mount Kenya and Kilimanjaro and plenty of big game—to show him, but one hopes that he will remember with pleasure the splendid view from the wards of the Military Hospital, Freetown, the big ships which slipped by so close to Flagstaff House in Lagos and how pleasant it was to listen to the gentle lapping of the waves when sitting out there after dinner, and perhaps lastly those successful runs which he achieved on a board when having his first surf bathe on the beach at Accra.

I desire to acknowledge gratefully the services of Sjt. Hall, R.A.O.C., the Command Photographer, who took many photographs in Accra and Lagos.

Review

A SURGEON'S FIGHT TO REBUILD MAN. By Dr. Fred R. Albee, M.D., F.A.C.S., F.I.C.S. Published by Robert Hale. Price 15s.

A "Surgeon's Fight to Rebuild Man" is more than an autobiography, it is the "Albee Saga." The author has not attempted a detailed diary of his life and work but rather has gathered together in chronological order impressions and incidents out of a very intensive life and woven them together with an easy, humble and well-balanced style into a book that makes pleasant and worth-while reading.

It is fascinating to see how little incidents of his early life bear fruits in later years and influence many aspects of his professional career.

A widely travelled man, the author proves to be a very artistic observer. Some of the lessons he learnt in pre-1914 Europe may well be applied with advantage today. The globe trotter will appreciate the recount of experiences in many varied states and continents.

In the field of Orthopædic Surgery, Dr. Fred H. Albee ranks with the highest of both hemispheres, through his tireless energy and initiative this man, a remarkable combination of artist and artisan, left far more to his colleagues than a mechanical saw and numerous bone-grafting operations for which he is renowned in the Surgical world; but more important than those were his ideas for future research into unexplored fields.

Another aspect of the author's life is that of the Medical Diplomat. In this field he spared no effort to bring the surgery of many peoples and tongues together and so benefit an even larger number of men.

A. A. G. D.

Obituary

Lieut.-Colonel DANIEL LITTON HARDING

IN Dublin on February 13, 1951 (his birthday), Lieutenant-Colonel Daniel Litton Harding, F.R.C.S.I., R.A.M.C., Retired. Third son of the late Falkiner Harding, Esq., of Dublin, he was born March 13, 1877. He took the L.R.C.P. and S.I. in 1900; the F.R.C.S.I. and the D.P.H. in 1907. Having served as a civil surgeon 59 days—February 26 to April 25, 1901—he was appointed Lieutenant, R.A.M.C., April 26 the same year. Promoted Captain April 26, 1904, Major April 26, 1913, and Lieut.-Colonel July 29, 1923, he retired January 7, 1926.

He took part in the operations in Cape Colony in 1901 and 1902, being awarded the Queen's Medal with three Clasps.

He served in France August 20, 1914, to March 17, 1919. Thrice mentioned in despatches, he was awarded the *D.S.O.*, 1914 Star, British War and Victory Medals.

A man greatly beloved. His genial kindly cheerful manner endeared him to children. What a dear man, as an old lady said and all will agree. We have indeed lost a good officer and gentleman.

A great traveller, he had travelled several times round the world and during the later thirties, used to spend the winter in South Africa, but being a tremendously keen fisherman always returned in the late spring to Waterville for the fishing. There can be few who had a greater knowledge of Lough Currane.

He suffered from arthritis, which caused intense pain and greatly hampered his movements, as years went on.

Colonel Harding presented the Dennis Cup to the R.A.M.C. Golfing Society in 1924, which later was renamed The R.A.M.C. Golfing Society Championship Cup. He also presented two dies for striking the Dennis Gold and Silver Medals. The winner of the cup hold it only for one year. The winner retains the gold medal and the runner up the silver medal. He will be specially remembered at the spring meeting this year.

The nickname Dennis, by which he was always known, was conferred on him, being an Irishman, by Sir Arthur Sloggett.

M. F., T. I. D., J. G. F.

Lieut.-Colonel MORTIMER JOHN CROMIE

IN Surbiton, Surrey, on March 15, 1951. Lieut.-Colonel Mortimer John Cromie, R.A.M.C., Retired.

Born October 2, 1880, he took the M.R.C.S.England, and the L.R.C.P. London, in 1904, and entered the service July 31 the following year.

Promoted Captain January 31, 1909, and Major October 15, 1915, he was

placed on half-pay April 22, 1921, and retired on account of ill-health contracted on active service May 30, 1923.

He served in Gallipoli from April to October 1915, on the Salonika Front October 1915 to June 1916, in Mesopotamia December 1917 to June 1919, and in North Russia July to September 1919. He received the Order of the White Eagle 4th Class, the 1914-15 Star, British War and Victory Medals.

J. G. F.

Lieut.-Colonel WALTER JAMES WATERS

IN St. Aubin's, Jersey, suddenly on February 16, 1951, Lieut.-Colonel Walter James Waters, *O.B.E.*, *R.A.M.C.*, Retired. Born May 19, 1876, he took the *M.R.C.S.* England, and the *L.R.C.P.* London, in 1899, and was appointed Civil Surgeon October 25 the same year, commissioned Lieutenant, *R.A.M.C.*, November 14, 1900, he was promoted Captain November 14, 1903, Major November 14, 1912, and Lieut.-Colonel February 1, 1923, he retired April 20, 1923. He held the Retired Pay appointment at Mill Hill from June 1, 1923, till September 30, 1945, and then settled in St. Aubin's, Jersey.

In South Africa 1899-1901, he took part in the advance on Kimberley, including actions at Belmont and Modder River, the Relief of Kimberley, operations in Orange Free State including operations at Paardeberg, and operations in Transvaal, being awarded the Queen's Medal with six Clasps. He served in France from February 1915 to March 1919. Thrice mentioned in despatches, he received the *O.B.E.*, 1914-15 Star, British War and Victory Medals and 1939-45 Home Defence and War Medals.

J. G. F.

Lieut.-Colonel CUTHBERT GARRARD BROWNE

SUDDENLY on February 27, 1951, in Rapallo, Lieut.-Colonel Cuthbert Garrard Browne, *C.M.G.*, *D.S.O.*, *R.A.M.C.*, Retired, of Lakers Farm, West Chillington, Sussex. Son of the late Walter P. Browne of Bidston, Gipsy Hill, he was born March 3, 1883, and took the *L.R.C.P.* London, and the *M.R.C.S.* England, in 1905, and entered the *R.A.M.C.* July 31 the same year, taking the de Chaumont Prize.

Promoted Captain July 31, 1909, Major October 15, 1915, and Brevet Lieut.-Colonel June 3, 1918, he retired May 23, 1926, having been on half-pay from July 22, 1922, till May 13, 1923.

Rejoined September 7, 1939. Released December 28, 1945.

He served in France from August 19, 1914, till November 26, 1919. Seven times mentioned in despatches, he was created *C.M.G.* and *D.S.O.*, received the Brevet of Lieut.-Colonel, the 1914 Star and Clasp, British War and Victory Medals.

1939-45. For two years Registrar, Royal Victoria Hospital, Netley. Then President Medical Board H.Q. Shaftesbury and also worked at Taunton, Exeter and Dorchester. Defence and War Medals.

J. G. F.

Major-General HAROLD JOHN HIGGINS

AT Dublin on March 4, 1951, Major-General Harold John Higgins, C.B., O.B.E., F.D.S., K.H.D.S., Director of the Army Dental Service at the termination of a severe illness. Born November 2, 1894, he received a Commission as Temporary Lieutenant June 24, 1918, becoming Temporary Captain June 1919. He was posted to the newly formed Army Dental Corps in May 1921 with the rank of Temporary Captain. His subsequent promotions were:

Captain, 24.12.21; *Major*, 24.6.30 (acting Lieut.-Colonel, 22.9.39-21.12.39; Temp. Lieut.-Colonel, 22.12.39-16.10.41); *Lieut.-Colonel*, 17.10.41 (acting Colonel 18.9.42-17.3.43; Temp.-Col. 18.3.43-28.6.43, and 16.12.43-15.8.46); *Colonel*, 17.10.44 (16.8.46); *Maj.-Gen.*, 1.9.48.

He was employed under Air Ministry 25.1.22-5.1.27; as A.D.D.S., B.E.F., 22.9.39-17.8.40; D.D.D.S. East Africa, 18.8.40-29.11.41; A.D.D.S. Egypt, 22.12.41-17.9.42; A.D.D.S. Middle East, 4.7.43-15.12.43; D.D.D.S. B.A.O.R., 16.12.43-12.6.47; D.D.D.S. Home Forces, 7.8.47-14.8.48; and was selected as Director of the Army Dental Service September 1, 1948. He received the O.B.E. in January 1946 and was made K.H.D.S. October 27, 1948.

J. G. F.

Sir Neil Cantlie, the D.G.A.M.S., writes of him:

The Medical Services have suffered a grievous blow in the untimely death of the Director of Army Dental Services.

Harold Higgins was a man who was universally liked and I imagine he had few if any personal enemies. I had known him for over 20 years and feel an acute personal loss as well as sorrow at the passing of a Director for whom I had the highest regard. He was, I am sure, the most widely known amongst senior dental officers and he had served in most places and had travelled widely. A bachelor who enjoyed good cheer and the good fellowship of his friends, he was straightforward and honest in everything he did, with a practical common-sense outlook. He had a habit of getting a lot of work done without fuss or bother. Kindly in speech and manner, he loved to recount tales of life which he had encountered in many parts of the world, from Darjeeling to Nairobi.

Higgins began life in the dental service of the Royal Air Force before joining the R.A.D.C. and in this way had an unequalled personal knowledge of not only nearly everyone in his own Corps and the R.A.M.C., but the R.A.F. Medical Services as well.

In the last war he had an unrivalled experience of the dental services in the field from service spent in East Africa, the Middle East, Paiforce and in Europe. Who has not heard of his experiences in Nairobi when he shared a bungalow with Major-General Barnsley and Major-General Orenstein? I think he ran not only the dental services of the force, but being willing as always to turn his hand to anything useful, was transport officer to headquarters as well.

But we will remember him chiefly for his kindly humanity and his charm of manner. a man who had many friends who will sincerely mourn his loss.

Major-General Sir PERCY STANLEY TOMLINSON

IN Hove on March 6, 1951, Major-General Sir Percy Stanley Tomlinson, *K.B.E., C.B., D.S.O., F.R.C.P.* Son of the late Lieut.-Colonel William Winslow Tomlinson, *R.A.M.C.*, who served from 1864 to 1894, he was born November 11, 1884. Educated at Clifton College, Bristol, and University College, Bristol, he took the *L.R.C.P.* and *M.R.C.S.* in 1909. In 1931 he took the *M.R.C.P.* and the *F.R.C.P.* was conferred on him in 1943. Appointed Lieutenant, *R.A.M.C.*, January 30, 1909, he was promoted Captain July 30, 1912, Brevet Major January 1, 1918, Major January 30, 1921, Brevet Lieut.-Colonel January 1, 1932, Lieut.-Colonel March 2, 1934, Colonel January 1, 1935, Major-General August 10, 1941, and retired November 11, 1944.

He was Adjutant 56 (1 London) Division T.A. October 1928 to October 1931 and a *D.A.D.M.S.* in India January 1934 to January 1937. He was appointed Honorary Physician to the King August 10, 1941, and Colonel Commandant August 27, 1945. He was Representative Commandant for 1947.

He served in France in September and October 1914 and again from September to December 1915 when he proceeded to the Macedonian Front. Thrice mentioned in despatches, he received the Brevet of Major, the *D.S.O.*, 1914 Star, British War and Victory Medals.

He served in the Middle East first as *D.D.M.S.* and then as *D.M.S.* from September 1, 1939, to August 12, 1943, and in North-West Europe June 17 to October 11, 1944, as Director of Medical Services. Four times mentioned in despatches, he was created *C.B.* in 1941 and *K.B.E.* in 1943. He received the Legion of Honour, the Croix de Guerre, and in 1947 the Legion of Merit of the U.S.A.

He was a Commander, Order of St. John.

In 1920 he married Miss Gertrude Muriel Barr, and they had one son, who was killed on active service in 1941 and one daughter.

J. G. F.

The funeral, a short and most impressive ceremony, was held at Golders Green Crematorium. In addition to Lady Tomlinson and immediate relatives there were present the Director-General, Sir Neil Cantlie; Major-Generals Monro and Dowse; the Representative Colonel Commandant, Lieut.-General Sir Treffry Thompson; Major-General Mollan, Commandant *R.A.M. College*; Colonel A. E. Campbell, Department of Army Health; Lieut.-Colonel A. N. T. Meneces and Major Chapman who was for many years at the Q.A. Hospital, Millbank.

The Service was conducted by the Chaplain General to the Forces, The Rev. Canon F. Le Hughes, *C.B., C.B.E., M.C., T.D., M.A., K.H.C.*

Major-General D. C. Munro to whom we are indebted for the loan of the photograph of General Tomlinson which forms our frontispiece writes of him:

"I hope the enclosed photograph of the late Major-General Sir Percy Tomlinson will be considered satisfactory from the technical point of view, for reproduction in the *Corps Journal*. Those who served under him in the early years (1940-41) in the 'Middle East,' will agree with me that this lucky snap has caught him just as we knew him in his happiest

moments. It was taken at Gebeit in the Sudan in February 1941, while we were on tour with the D.D.M.S. (Sudan) (Colonel Pride) and I had it extracted from the group I snapped and then enlarged. In offering it for publication I am confident that it will serve far better as a tribute to his memory from myself and my colleagues of the Medical Directorate, M.E.F., than any words I could write. Our old Chief's whole character and kindness are here manifest. Furthermore, I believe, with confidence, that Percy Tomlinson himself would have agreed that his life was at its zenith when this snap was taken. It was a time of intense activity, a time of bustle and build-up. The weight of our arms were just begining to be felt and the enemy were on the run in the north and south. Above all we had the exhilarating excitement of daily increasing experience. To all these stimuli our Chief responded like the great officer he was. In spite of numerous shortages and other 'headaches' he planned, improvised and stimulated those under him as he conveyed to them his own enthusiasm and optimism.

"Later in the year we were to see a very different picture. We had suffered serious reverses in the Western Desert and in that forlorn hope in Greece. On top of these anxieties came the tragic news that his only son had been killed. I shall never forget the signs of obvious strain which were apparent when he was ordered to inform his staff that Rommel was knocking at the door of Alexandria and that we were to burn all non-essential files in case G.H.Q. had to be evacuated. My most lasting-memory of my old Chief is the way in which he remained working calmly and for long hours at his desk during this period of intense personal strain and by so doing inspired us all with hope and confidence."

Major-General Macfie writes:

My first meeting with Sir Percy Tomlinson takes memory back to August 1915.

With a large batch of newly (Temporary) commissioned subalterns R.A.M.C. licensed by a Scottish University to practise medicine some fourteen days previously, I joined a Training Centre at Bulford on August 2. Some of us had infantry training in an Officers' Training Corps, some wore His Majesty's Uniform for the first time. We then knew little of the practical application of the learning achieved in five crowded years and less of the ways of the Army.

After a week at the Training Centre, many of us were posted to bring up to strength the Field Ambulances of the 26th Division, a Kitchener formation of excellent material which had commenced its build up in the Autumn of 1914. The Field Ambulances of the Division were numbered 78, 79 and 80 and with us there arrived for each a new Regular Commanding Officer—Gerald Stevenson, Percy Tomlinson and Ben Johnson. Outstanding officers all of them, we were indeed fortunate in our C.O.s and, despite our lack of preliminary training, soon felt that, under their instruction and example, we were pulling some weight in efficient units. Many of us remained with our units for the remainder of the war. We had got to know one another pretty well.

I did not meet my future chief much between the wars. Too senior to do the College Course, he was posted to a Territorial adjutancy in London and, while in this appointment, obtained his Membership. The Fellowship followed in 1943 when he was D.M.S. Middle East Force.

It was early in 1939 that we came to serve together again. He was appointed D.D.M.S. British Troops in Egypt, his task to prepare the Medical Services in Egypt and the Sudan for mobilization. It was a start from scratch. The only field unit in the Command was a very small cadre of a Light Field Ambulance. It was known that if war broke out, all three military hospitals in Egypt, in the Citadel at Ras-el-Tin, and at Moascar would have to move.

In early 1940, the Services of G.H.Q. Middle East Force began to form and Colonel Tomlinson was appointed from Headquarters British Troops in Egypt to be Director of Medical Services at G.H.Q. There he remained until the North African war came to an end when he was transferred to England to become General Montgomery's Director of Medical Services to 21 Army Group.

The medical directorate of G.H.Q. Middle East was first located in a houseboat on the Nile, moored opposite the Semiramis Hotel; later it moved into various villas of the enclave in Garden City. The houseboat was locally known as H.M.S. "Overflow." From these small beginnings was built up under General Tomlinson the vast medical organization of Middle East Command and his was the guiding hand. Difficulties arose every day and there were many shortages but none of them in essentials, many valuable lessons were learned for later campaigns. He gathered round him a grand team of consultants who raised the professional work to a high standard. The administrative work continued at high pressure over many months but his grip of essentials never failed. There were days, not unnaturally, when he seemed to his staff to be anxious and would look in to see how things were going but he was always big enough, at such difficult times, to accept from them the advice to let them get on with details.

He was supported by a strong Christian faith and, outwardly at any rate, heard with great fortitude, on a hot Sunday afternoon in Cairo, the news that his son, newly commissioned in the Royal Air Force, had been killed on an early flight.

He was most happily married and owed much to the strength and understanding of his wife. With her and with his daughter we mourn our loss.

Another contemporary also writes of "Tommy" as follows:

By the untimely death of Percy Tomlinson at the comparatively early age of 66, the Corps loses one of the ablest Medical administrators and outstanding personalities of the second world war.

The outbreak of war found him in Cairo as D.D.M.S., Middle East, a relatively minor appointment, if rank be any criterion. But minor or no, it was soon to become, major indeed as operations in this theatre developed and he was confronted with the formation of a vast medical organization to cope with the field armies which began to spring up on all sides. Eritrea, Palestine, Greece and Crete, the Western Desert and for a time Iraq as well, all were within his sphere and the resultant heavy responsibilities coupled with the constant work entailed and distances to be travelled would have quickly exhausted most men: it says much for his ability and fortitude in the face of many difficulties and heartrending setbacks that he always remained cheerful and emerged triumphant.

As the war horizon lightened following the victory of Alamein, the rapid advance to Tunisia with its long L. of C. did little to diminish his burden, a burden which was not relieved by the urgent need to plan for the forthcoming invasion of Sicily. Once this successful manoeuvre was well established and the responsibility for the further support of the operations in Sicily and Italy handed over to Army H.Q. in North Africa, he gained only a short respite before being appointed D.M.S. 21 Army Group in U.K., there to plan again, but on this occasion to plan for the greatest military enterprise of our time, the one which was to liberate Europe from Hitler's domination. When Kneller Hall, so long associated with military music, was selected as the home of 21 Army Group's Medical Directorate, it became the home of very different melodies from those to which it had been accustomed. The success of the resultant "D-day" Concert which it produced was entirely due to its brilliant composer, whose efforts right down to the minutest detail, were well rewarded by the unforgetable smoothness which consummated the result of his labours. No so long after the landing in Normandy he himself followed, and there, from his H.Q., first near Bayeaux and later in Brussels, he directly controlled the medical operations and witnessed the fruition of all his careful planning.

His retirement in the winter of 1944 was a great loss not only to 21 Army Group, where he was so popular and held in great esteem, but also throughout the whole Corps and he left many sad hearts especially among those who knew him best and would have wished that he could have led the team, whose inspiration he had been, to the final phase of victory in Germany.

During all these trying times from the Middle East to N.W. Europe, and despite all vicissitudes, "Tommy" as he was always affectionately known maintained his cheery outlook and his ever helpful attitude: with his kind and sympathetic nature one felt that the

rare occasions on which he "bit" were well justified, and were, after all, but transient clouds on a summer's day. Had he not been a man of great determination and so clear a thinker, success could not have crowned his efforts as they did, while his tactful approach to many a controversial question had the same effect as oil on an angry sea.

It was the writer's misfortune not to have been associated with him until the war, but in that short period, he, like so many others, learned to love and admire the man, respecting and appreciating his sterling character, while for those serving under him it was always a source of great comfort and satisfaction to feel that the ubiquitous "Tommy" was not far away.

The loss of his son was a staggering blow and the strenuous war years must have taken their toll even of a man of his calibre: the reaction no doubt was a contributory cause to the cutting short of a well-earned retirement. During the few years he was on the retired list he continued to take a lively interest in the Corps and his loss will be mourned by all who knew him, while his name will long be honoured in the annals of the Royal Army Medical Corps.

Having served with and met Percy Tomlinson at many times and places I too would like to pay a small tribute to his memory:

He had always seemed to be to me one of the best type in the Corps: First and foremost very keen on his job and the efficiency of the service, combining high professional ability and knowledge with an aptitude for administration; human and knowledgeable in the ways of officers and men, with a keen interest in their doings; meticulous as to detail but with a clear grasp of main essentials and their meaning.

But it was at his headquarters in Normandy, to which I had come from an eastern theatre to learn *how things should be done*, that I really realized what a great man he was, how medical planning and execution centred on him, how efficiently the Medical Services functioned under his guidance, and how he knew his staff and personnel and consequently held their confidence and esteem. Lucky it was for the *Corps*, the Army and the Empire that we had men like Percy Tomlinson to organize and control the medical affairs of Middle East and the Normandy invasions.

T. O. T.

Extracts from the "London Gazette"

HONOURS AND AWARDS

London Gazette 16.2.51

The King has been graciously pleased to confer the award of "4 Clasps" to the Territorial Efficiency Decoration upon the following officer:

R.A.M.C.

Colonel W. H. Kerr, *T.D.*

The King has been graciously pleased to confer the award of "3 Clasps" to the Territorial Efficiency Decoration upon the following officers:

R.A.M.C.

Col. J. F. Fraser, *T.D.*, M.B.

Maj. G. D. Thompson, *T.D.*

The King has been graciously pleased to confer the award of the "1st Clasp" to the Territorial Efficiency Decoration upon the following officer:

R.A.M.C.

Maj. W. A. Liston, *M.C., T.D., M.B., F.R.C.P., F.R.C.S.Edin,*

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration and 3 Clasps" upon the following officer:

R.A.M.C.

Lt.-Col. D. S. Middleton.

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration and 1st Clasp" upon the following officers:

R.A.M.C.

Col. G. B. Mitchell-Heggs, *O.B.E., M.D., F.R.C.P.*

Lt.-Col. N. C. Oswald, *M.D., F.R.C.P.*

Lt.-Col. S. R. Trick.

Lt.-Col. W. E. Tucker.

Maj. A. S. Bookless, *M.B.*

Maj. M. W. Lloyd-Owen, *M.D.*

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration" upon the following officers:

R.A.M.C.

Lt.-Col. (Bt.-Col.) (Hon. Brig.) F. A. E. Crew, *T.D., M.D., D.Sc., Ph.D., F.R.S., F.R.C.P.Ed.,* retired.

Maj. (Hon. Lt.-Col.) A. McD. Davies.

Maj. J. B. Neal.

Hon. Maj. (Qr.-Mr.) J. J. Bicknell, retired.

Hon. Maj. W. S. J. Parr, retired.

Capt. (Hon. Maj.) E. N. Rees.

Capt. (Hon. Maj.) R. G. Russell.

R.A.D.C.

Capt. A. Lovat.

PROMOTIONS

(1) *R.A.M.C.*

(a) To be Brigadier:

Col. W. R. D. Hamilton, *O.B.E., M.B.* 1.2.51

(b) To be Colonels:

Lt.-Col. W. A. R. Ross, *M.B.* 1.2.51

Lt.-Col. E. M. Hennessy, *O.B.E., M.B.* 17.2.51

(c) To be Lt.-Cols.:

Maj. K. H. Harper 1.2.51

Maj. T. M. W. D'Arcy 17.2.51

(d) To be Major (S.S.C.):

Capt. L. F. C. Chevens 7.12.50 (sen. 6.6.50)

(e) To be Capt.:

Lt. Bruce Noel Bailey, *M.B.* 12.2.51

(f) To be Capt. (Qr.-Mr.) S.S.C.:

Lt. (Qr.-Mr.) A. G. Castle 9.2.51

(g) To be Capts. (A. & T.) S.S.C.:

Lt. E. W. Richardson	13.4.49
Maj. (Qr.-Mr.) E. F. Baggs (seniority 15.6.42)	1.1.51
Maj. (Qr.-Mr.) E. P. W. Hoar (seniority 23.11.42)	1.1.51
Maj. (Qr.-Mr.) W. Russell, <i>M.B.E.</i> (sen. 20.3.43)	1.1.51
Maj. (Qr.-Mr.) W. G. Hyde (seniority 20.3.43)	1.1.51
Maj. (Qr.-Mr.) A. Sills (seniority 23.3.43)	1.1.51
Maj. (Qr.-Mr.) P. O. Sinden (seniority 10.8.43)	1.1.51
Maj. (Qr.-Mr.) F. A. Thorn (seniority 13.1.44)	1.1.51
Maj. (Qr.-Mr.) A. Dixon (seniority 21.5.44)	1.1.51
Maj. (Qr.-Mr.) E. S. Fuzzard (seniority 7.1.44)	1.1.51

(h) To be Lt. (Qr.-Mr.):

7340291 W.O.I David Hook	1.2.51
--------------------------	--------

(i) To be Lts. (A. & T.) S.S.C.:

2/Lt. T. Armstrong	1.2.51
2/Lt. W. J. R. Headley	1.2.51
2/Lt. F. E. Euston	1.2.51
2/Lt. R. A. Hislop	1.2.51

(j) To be 2nd Lts.:

799602 W.O.I William John Richard Headley	1.2.51
7262729 W.O.I Frank Edward Euston	1.2.51
7262780 W.O.I Robert Alan Hislop	1.2.51
7261897 W.O.II Thomas Armstrong	1.2.51

(2) *R.A.D.C.*

(a) To be Capt.:

Lt. J. C. Flitch	25.1.51
------------------	---------

APPOINTMENTS TO SHORT SERVICE AND PERMANENT COMMISSIONS

(1) *R.A.M.C.*

(a) Maj. L. F. C. Chevens from Short Serv. Commn (Type "B") to be Capt., Dec 7, '50.

(2) *R.A.D.C.*

(a) Capt. J. C. Flitch from Short Serv. Commn Lt., Jan. 25, 1951.

RETIREMENTS

(1) *R.A.M.C. AND LATE R.A.M.C.*

Maj.-Gen. J. Bennet, M.D., F.R.C.P., K.H.P.	1.2.51
Col. C. P. Chambers (disability)	17.2.51
Capt. G. M. Ligertwood, M.B. (disability)	22.12.50
Maj. W. F. Hooton (disability)	13.2.51 (Hon. Lt.-Col.)
Maj. A. J. Leslie-Spinks, B.M. (with gratuity)	28.12.50 (Hon. Col.)
Lt. (Qr.-Mr.) G. H. C. Packe	2.2.51

(2) *R.A.D.C.*

Col. S. H. Woods, <i>O.B.E.</i> , F.D.S., K.H.D.S.	23.2.51
--	---------

A Supplement to the London Gazette has announced the following awards:

Four Clasps to the Territorial Efficiency Decoration.—Colonel H. F. Humphreys, *O.B.E.*, *M.C.*, *T.D.*, *R.A.M.C.*, retired.

Three Clasps to the Territorial Efficiency Decoration.—Colonel J. F. O'Grady, *T.D.* (Honorary Colonel 42nd (East Lancashire) Divisional *R.A.M.C.*, *T.A.*), and Colonel M. H. Summers, *D.S.O.*, *T.D.*, *R.A.M.C.*

Two Clasps to the Territorial Efficiency Decoration.—Brigadier A. L. Crockford, D.S.O., O.B.E., M.C., T.D., K.H.S., Colonel W. W. Crawford, T.D. (now S.R., R.A.M.C.), Lieutenant-Colonels M. W. Gonin, D.S.O., T.D., and A. H. D. Smith, M.C., T.D., retired, Major (Honorary Colonel) E. Walsh, T.D., retired, and Majors R. E. M. Fawcett, T.D., and K. W. N. Palmer, T.D., R.A.M.C.

First Clasps to the Territorial Efficiency Decoration.—Colonel R. W. Nevis, T.D., R.A.M.C.

Territorial Efficiency Decoration and Two Clasps.—Lieutenant-Colonel G. L. Malcolm-Smith, R.A.M.C.

Territorial Efficiency Decoration and First Clasp.—Major (Honorary Lieutenant-Colonel) W. P. Purvis, R.A.M.C.

Territorial Efficiency Decoration.—Colonel R. F. Guymmer, Lieutenant-Colonel H. L. Sheehan, Major (Honorary Lieutenant-Colonel) C. K. Colwill, Major C. H. Pauli, and Captain (Honorary Major) F. C. O'Mara, R.A.M.C.

Notices

I

ENHAM-ALAMEIN VILLAGE SETTLEMENT, ANDOVER, HAMPSHIRE

ENHAM VILLAGE CENTRE was founded in 1918 to help men disabled in the first World War by restoring their working capacity, giving them permanent sheltered employment, with training for a new occupation if necessary, and providing homes for themselves and their families.

At the end of the second World War and owing to the generosity of the Egyptians a fund was raised with the object of providing in this country a memorial to the battle of Alamein and to the saving of Egypt from the invading German and Italian forces. This fund reached a total of £250,000.

After much discussion, it was decided by the Alamein Memorial Foundation Committee, with the grateful acquiescence of the Village Centres Council, to utilize this gift to extend the facilities already in existence at the Enham Village Settlement near Andover for the rehabilitation of the war-disabled man.

This was to involve the building of an Alamein village in proximity to the Enham settlement, the use of the latter's industrial workshop in which there would be room for the additional men to be housed in the new village, and the coalescence of the whole in the Enham-Alamein village settlement.

This aim has already been achieved in the main.

It was ultimately decided also that for the present, at all events, the Enham-Alamein facilities should be devoted only to suitable tuberculous cases.

Progress in the requisite constructional work has been slow for reasons similar to those affecting new building in this country as a whole.

Nevertheless, considerable advances have been made. These include the acquisition of a small hospital at Weyhill for use as a Reception Centre, which

will be the responsibility of the Regional Board, and which is on the point of opening.

One wing of the hostel, taking 50 men out of the 300 which it will ultimately accommodate, has been completed together with the administrative block. In addition 12 model cottages for settlers have been built, and much work has been done on essential ancillary services such as water, roads, gas, and electricity.

In due course, though the fulfilment of the project must take some time, a church, school, and club will be built and playing fields and other amenities provided, as well as many more cottages.

Apart from the work of the hospital at Weyhill there is all necessary provision for the medical supervision of the rehabilitants and settlers in the Enham-Alamein village settlement itself.

The Ministry of Pensions has recently confirmed that a 100 per cent disability pension will be automatically granted for at least six months after discharge from the Service to ex-Servicemen invalided from the Services suffering from pulmonary tuberculosis, who were in the long-term treatment scheme. This concession, coupled with the financial assistance available from other ministries concerned, means that the Enham-Alamein Village Centre, as well as others, are open to ex-Servicemen under financial arrangements which can now be regarded as adequate.

It is hardly necessary to stress the advantages to suitable cases of this scheme, and the fact that such patients will be under sheltered conditions during the danger period up to two years which follows discharge from the sanatorium in the average case of pulmonary tuberculosis.

It is finally pointed out that after rehabilitation a material field of employment in civil life is open to the rehabilitant quite apart from remaining as a settler should he be so desirous and suitable, and should accommodation be available.

Instructions as to the procedure to be adopted in obtaining entry for a Serviceman to Enham-Alamein have been circulated by the War Office.

Any more detailed information wanted should be requested from the Secretary Enham-Alamein Village Settlement, the White House, Enham-Alamein, Andover, Hants (Tel. Andover 2205).

It is finally hoped that those interested and feeling that they would like to visit the Settlement will do so. Such visit should be arranged with the Secretary.

II

HEALTH CONGRESS, 1952

THE Royal Sanitary Institute has accepted an invitation from the Corporation of Margate to hold the Health Congress there in 1952, from Tuesday, April 22, to Friday, April 25, inclusive.

III

PRIZE ESSAY COMPETITIONS, 1951

THE Council of the Royal Sanitary Institute have announced particulars of the prize essay competitions for 1951. Two prizes are offered: the John Edward Worth Prize of £40 for an essay on "The Planning of Old Peoples' Dwellings and the Provision of Communal Facilities and Services in Connection Therewith," and the John S. Owens Prize of £15 for an essay on the ventilation of dwellings and its effect upon human health.

Intending competitors should apply to the Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.1 for a copy of the general conditions. Entries must be submitted by December 31, 1951.

IV

THE NATIONAL CORPORATION FOR THE CARE OF OLD PEOPLE

NOTES ON THE THIRD ANNUAL REPORT

At the commencement of their Report the Governors of the National Corporation are proud to announce that Her Majesty the Queen has graciously consented to become the Patron of the Corporation.

In this third year since formation there has been an increase in the work, not in increased grant giving but in other ways. The Corporation has, for example, been making strenuous efforts to obtain agreement between the National Health Service and local authorities in the setting up of experimental Homes, designed to take people who need no further skilled nursing in hospital but who would not receive sufficient care and attention in "Part III accommodation," provided by the welfare authorities. The Corporation has offered to provide the necessary capital and has suggested that maintenance should be shared between the hospitals and welfare authorities. Account is given of work in connexion with four such homes, one in Scotland, one in Northern Ireland and two in England.

The Corporation considers that standards in local authority Homes are sometimes too high: "Few old people in their own homes are able to maintain the standard which some local authorities are setting." Reference is made to the cost which the acceptance of such standards throughout the country would entail. There is also criticism of the recommendations of some Fire Officers in respect of new Homes because they involve the Homes in heavy expenditure which is considered not always to be necessary.

Consideration has been given to the care of old people in their own homes. The Corporation is anxious to discover what can best be done for them: a grant made to the laundry scheme has been a first step in this field. It also draws the attention of the smaller voluntary committees to the slight cost and

great value of non-residential clubs especially when open several days a week: the Corporation has continued to assist in their provision.

During the year there were ninety-one applications for assistance and the total sum allocated or paid out was £125,429. It is stated that on the whole the standard of the proposals made has been higher than that of the previous year.

The Corporation continues to provide the secretariat for three other organizations which are setting up Homes for elderly people. Two Homes have been open for some time, a third is about to be opened, and steps towards the opening of two others are in their early stages.

Although not included in the Report, the Corporation hopes soon to publish notes on the purchase and adaptation of existing properties for use as Homes for old people. This is designed to assist voluntary committees by giving details of the type of accommodation which is considered necessary.

V

THE BRITISH RHEUMATIC ASSOCIATION

WE have received the Third Annual Report, 1949-50, of this Association.

The British Rheumatic Association is a lay body working under medical guidance on the technical side, with the objective of securing the medical, social and economic welfare of the rheumatic sufferer. A quarterly journal is published.

The Journal is designed for the lay public. While contributions from medical authorities will be sought, a special endeavour will be made to collect all information on the social and economic problems confronting the rheumatic sufferer, and of experiments made in industry both in this country and overseas.

The first number appeared in August. We were fortunate in receiving messages of welcome to our new enterprise from Lord Horder, Lord Nuffield, Lady Limerick as representing the Red Cross, and the Dowager Marchioness of Reading, as representing the W.V.S.—the two organizations who co-operate closely with the welfare department of the Association and render such constant and valuable services to the rheumatic sufferers.

The Journal is supplied free to members of the Association and sold to the general public at 2s. 6d. per issue, post free. It is at present being published by the Association.

VI

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE (1952)

ORGANIZED by the British Board of Management of the International Federation of Physical Medicine.

Preliminary Notice

President: Lord Horder.
 Vice-Presidents: Dr. Frank Howitt (Treasurer)
 Dr. Philippe Bauwens (Chairman of the Executive Committee)
 Dr. Frank S. Cooksey
 Hon. Secretary: Dr. A. C. Boyle
 Address: 45, Lincoln's Inn Fields, London, W.C.2.

The Congress will be held in London from July 14 to 19, 1952.

In accordance with the regulations of the International Federation of Physical Medicine, the meetings of the Congress will be reserved for matters dealing with the clinical, remedial, prophylactic and educational aspects of Physical Medicine and with the diagnostic and therapeutic methods employed in Physical Medicine and Rehabilitation.

Technical, scientific and historical Exhibitions also will be arranged.

In addition to the Scientific Programme, a full programme of social events and entertainment is being planned for the members and associate members. Arrangements for London and provincial visits of scientific and historical interest are also being made for the Congress week and the following week.

This is a preliminary notice and full details will be notified later. Applications for the Provisional Programme should be addressed to the Honorary Secretary. International Congress of Physical Medicine (1952), 45, Lincoln's Inn Fields, London, W.C.2.

JOURNALS RECEIVED

The following journals have been received and are available in the R.A.M. College Library:

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health and Hygiene, St. Bart's Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Santé, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Santé Militaire, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology and Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s. payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, R.A.M. College, Millbank, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 91, GREAT
TITCHFIELD STREET, LONDON, W.1. TELEPHONE: MUSEUM 2077.

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		PAGE
ORIGINAL COMMUNICATIONS			
Experiences in a Field Surgical Team Working in Pahang State, Malaya. By GEOFFREY J. HADFIELD, M.B., F.R.C.S., and A. J. HEBER, M.B., R.A.M.C.	339	Schizophrenic Reaction associated with the Kleine-Levin Syndrome. By Lieut.-Colonel J. T. ROBINSON, O.B.E., M.A., M.D., D.P.M., D.T.M.&H., and Major J. McQUILLAN, M.B., D.P.H. . .	377
Some Aspects of National Health Service : Insurance Aspects of Occupational Dermatitis. By M. FEIWEL, B.A., M.B., B.Ch., M.R.C.P., R.A.M.C.	345	Assessment of Physical Fitness for Service in the British Army. By Colonel A. E. CAMPBELL, R.A.M.C.	382
Hyperthermia by Electric Blanket. By R. R. WILLCOX and W. A. FLYNN	350	AT RANDOM	
Case of Congenital Abnormality of the First Rib. By L. GOUT, M.D., and Lieutenant J. STEVENS, M.B., B.Ch., R.A.M.C.	355	Mountain Warfare	391
Episodes of a General Hospital in War. By Colonel K. FLETCHER-BARRETT, O.B.E., M.B., F.R.C.S.	358	CLINICAL AND OTHER NOTES	
A.O.R. Medicine 1946-49. By Brigadier F. J. O'MEARA, M.A., M.D., F.R.C.P.I., D.T.M.&H., Late R.A.M.C.	364	A Meeting of the Services Group of the Society of Medical Officers of Health. Reported by Colonel A. E. CAMPBELL, R.A.M. College . .	394
		CORRESPONDENCE	396
		TRAVEL AND HISTORY	398
		MATTERS OF INTEREST	407
		EXTRACTS FROM THE "LONDON GAZETTE"	411
		OBITUARY	414
		BOOK REVIEWS	416
		NOTICES	419



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : " Instruments, Wesdo, London "

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

EXPERIENCES IN A FIELD SURGICAL TEAM WORKING IN PAHANG STATE, MALAYA

(January – July 1950)

BY

GEOFFREY J. HADFIELD, M.B., F.R.C.S.

Captain Royal Army Medical Corps, T.A.

AND

A. J. HEBER, M.B.

Captain Royal Army Medical Corps, T.A.

THIS article is addressed to young officers, and its object is to describe the activities of a Field Surgical Unit working in the Malayan jungle.

The Second World War firmly established the value of the Field Surgical Unit which, as Ogilvie remarks, was born "on the need to temper surgical idealism with military realism." The first of these Units was established in North Africa in 1940 when it was realized that the C.C.S. was not mobile enough to keep up with the rapid advance of mechanized troops across the desert. Field Surgical Units were subsequently established under all conditions of warfare. Their primary object was to bring surgery to casualties who, because of the severity of their wounds, could not be moved more than a few miles.

Our Unit was attached to a Brigade operating in the State of Pahang and parts of several adjoining States; 95 per cent of the area is composed of jungle, most of it primary. It covers about 10,000 square miles, i.e. approximately one-third of the area of the Federated Malay States, or roughly that of Lancashire, Lincolnshire and Yorkshire combined, and like these counties it is traversed from north to south by a mountainous backbone reaching a maximum altitude of 6,000 feet. This vast area is served by a branch railway line which leaves the main line south of the State boundary and ends at a point near its centre. The only other line of communication is a single

main road from Kuala Lumpur to the centre of the State having a branch road at Bentong to Mentakab which also lies on the railway. Mentakab was chosen as the site of the Field Surgical Unit as we could evacuate casualties by road to Kuala Lumpur which lies on the main line to Singapore, or directly south by rail from Mentakab.¹

We encountered two major difficulties. The first was the state of the roads which are bordered right up to their edges by dense jungle, making it literally impossible to patrol them, and affording complete concealment for large numbers of ambushing parties a few yards from the road edge. The second was the problem of the casualty badly wounded deep in the jungle who is frequently carried long distances on a bamboo jungle stretcher and reaches the road edge suffering from a combination of surgical shock, dehydration and a severe form of hypochloræmia due to tropical heat and high humidity. It soon became obvious that all severely wounded men should in the first instance be evacuated no further than the nearest Regimental Medical Officer, who, after starting transfusion and resuscitation, was instructed to get in touch with our Field Surgical Unit. We then set off from Mentakab either by Auster aircraft to the nearest airstrip and then by road, in convoy, or occasionally by ambulance train. This decision necessitated the establishment of a permanent Field Surgical Unit base at Mentakab where our tentage, stores and equipment were kept and from which we moved out to incidents. There were four small hospitals in the area and at each of these there was a R.M.O. attached to a Headquarter Company of a Battalion. Blood banks with a register of local donors were established at each small hospital. The distances to these hospitals from our base varied from 50 to 100 miles by road but the state of some of the long stretches of road was such that the journeys occupied from four to twelve hours, and in any case there was the ever-present risk of ambush. By aircraft the time taken for the Field Surgical Team to reach the casualty was reduced to a maximum of two and a half, and a minimum of three-quarters of an hour. When travelling by road the surgeon, anæsthetist, a serjeant O.R.A. and four other ranks were taken in a 15 cwt. lorry. All members of the party were armed. The equipment included a specially devised anæsthetic apparatus, which we have described in this Journal,¹ and surgical equipment suitable for the injury which the R.M.O. had described to us. After operation the unit stayed with the patient who was nursed until fit for evacuation. On occasions when other calls came to us whilst away from our Base, or when the casualty required a period of prolonged skilled nursing before evacuation, we were fortunate in being able to called on the valuable services of two nursing officers of the Q.A.R.A.N.C. who were flown to us from Kuala Lumpur. Casualties were evacuated by Auster aircraft or by road in a motor ambulance in convoy. The usual route was along the Gap road to Kinrara Hospital, Kuala Lumpur. In the early days all casualties evacuated by air sat by the pilot. Later on the passenger seat was taken out and the patient was transported lying on a Neil-Robertson

¹ *J. of the Royal Army Medical Corps*, September 1950.

Some Views of the Lay-out at our Permanent Base at Mentakab



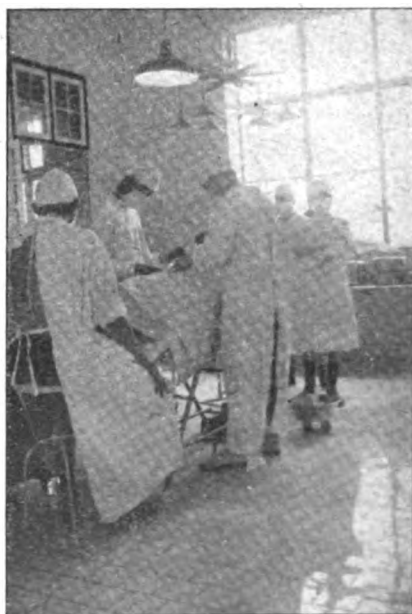
Showing the main lay-out with the unit's lines on the left and the ambulance park on the right.



A view of the ward, borrowed from the Civilian Hospital, in the foreground, and a tented ward.



Operating theatre.



Operation in progress.

stretcher along the fuselage. When the journey from Mentakab to the casualty was made by Auster air-plane, two aircraft were used—one for the surgeon and the serjeant O.R.A., the other for the anæsthetist and the equipment.

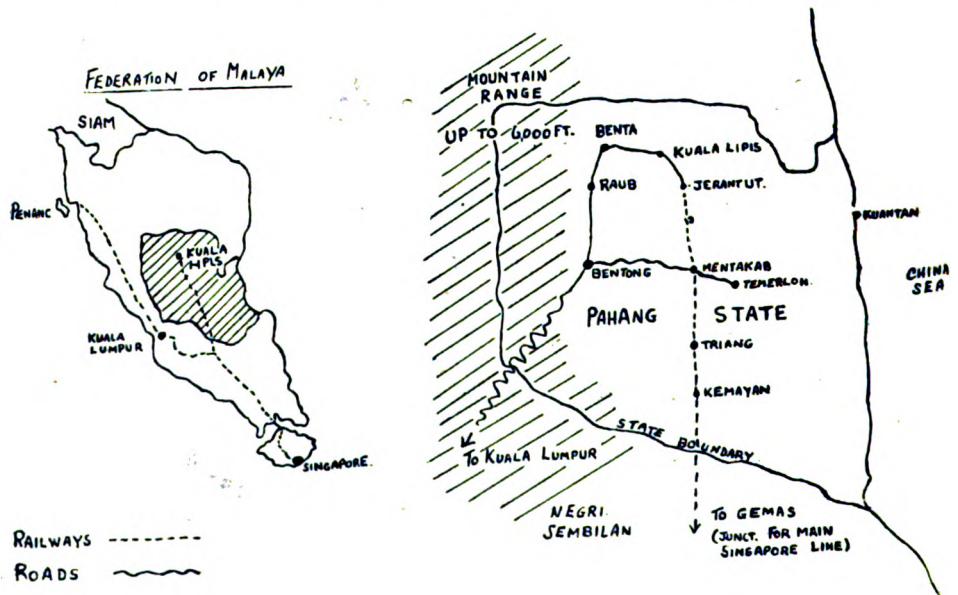
Apart from casualties among Imperial troops, the Unit dealt with those occurring in Federation troops, Police, and auxiliaries such as the Kampong guards.

The fighting in Malaya is of two main varieties. First, hand-to-hand fighting between small parties in the jungle where the unbelievably subdued light and the high, dense undergrowth reduce visibility to a few feet; second, ambushes on made roads or on mud tracks through rubber estates.

The weapons used by the bandits vary within rather wide limits; their best formations are well armed with modern automatic weapons and rifles, in the use of which they are fairly well trained; in other formations a few only are so armed, the majority carrying shot guns and a long weighted knife, the parang. In order of frequency the wounds dealt with were inflicted by Bren gun, '303 rifle, shot gun firing L.G., Sten gun, hand grenade.

The number of shotguns in Malaya is uncertain but it must be large as these weapons are used in country districts in peacetime to defend crops from herds of wild pig, for shooting game for food, and destroying marauding wild animals. Each cartridge of these jungle shotguns contains 15 solid steel balls or "L.G.," each ball being about $\frac{3}{8}$ in. in diameter. The cartridges are easy to obtain and when supplies are short can be made in the jungle as the material for making the charge can be obtained from the tin mines. This weapon at short range will stop a charging wild pig in less than a yard and as it discharges a cone of balls it does not need accurate sighting. It is the ideal weapon for the Chinese bandit who is a notoriously poor marksman. He usually carries a weapon whose barrel and stock are shortened. This makes it lighter, handy in the jungle, and it can be discharged from the hip. The Chinaman likes a short barrel as his arms are shorter than those of the European.

Although the effective range of this weapon is appreciably less than two



hundred yards, the wounds it inflicts at close quarters in jungle fighting are characteristic and almost always fatal except in the limbs. At any distance less than ten yards the victim is stopped "in his tracks" and as the close cluster of bullets is only just beginning to fan out, all the balls will probably penetrate. At this range the wound inflicted is a single, roughly circular one of 6 inches to a foot in diameter, and almost every vestige of skin and subcutaneous fat within the circle is destroyed. The edge of the wound is black, ragged and bleeding. The effect on the muscle below is characteristic. For a depth of 1 to 2 inches over the whole wound it is uniformly pulped, semi-fluid, and completely destroyed. In gunshot wounds of the front of the thigh, destruction of skin and muscle extends down to the femur shaft but, as the muzzle velocity is relatively low, large and deeply placed bones are rarely fractured. Gunshot abdominal wounds at close range are almost always fatal within a few minutes and post-mortem examinations of such cases revealed on the average 40 perforations of the bowel and abdominal viscera. Chest wounds at this range are characteristic in that the thoracic wall is "stove in" from multiple fractures of each of a series of ribs, and the entire lung is transformed into a large hæmatoma-like mass. In abdominal and chest wounds at ranges between 10 and 20 yards the number of immediately fatal cases declines. A Chinese policeman received a circular shotgun wound measuring 3 by 2 inches in the right side of the abdomen, involving the middle third of the rectus abdominis. A Field Surgical Team was despatched in an armoured ambulance train and the patient was transfused within an hour and the abdomen opened within four hours of wounding. Six closely-set perforations could be made out in the posterior wall of the sheath of the pulped rectus muscle, and 14 separate wounds involving about 6½ feet of the small intestine, and 8 tears in the mesentery were found at operation. All the gut wounds were closed and the abdominal wall repaired. After a complicated and stormy post-operative course this man eventually recovered. At ranges of 25 yards or more, the area of scatter being greatly increased, each ball produces its own separate wound, and the depth of penetration rapidly diminishes with the steeply falling velocity.

Our work in Pahang was very greatly facilitated by the willing co-operation of all branches of the Colonial Medical Services who, in return for the surgical treatment we rendered to civilians, the Malayan Police Force, and Federated troops, allowed us the full use of their hospitals for Imperial casualties.

The surgical diseases seen among Malayan, Chinese and Tamil civilians were of great interest. Common surgical conditions were seen at a remarkably advanced stage by British standards, and diseases peculiar to the equatorial Far East were common. Amongst these were vesical calculi of colossal proportions, leprosy needing amputation or peripheral nerve exposure, cancer of the penis, lymphogranuloma producing rectal stricture and lympho-epithelioma of the nasopharynx which was, of course, limited to the Chinese.

Syphilis was common but neurosyphilis non-existent, possibly because of the high incidence of endemic malaria.

Our experience in Malaya taught us the supreme importance of establishing and vigorously maintaining the highest possible standards of asepsis under highly unfavourable surgical conditions. We were most impressed by the value of transportation by air, the speed at which the surgical team was carried to the isolated casualty and the certainty that our patients would enjoy a comfortable and safe journey to the base hospital.

Our thanks are due to Brigadier J. Collins, D.M.S., Far E.L.F., for permission to publish this paper, and to Colonel P. F. Palmer, O.B.E., A.D.M.S. Malaya District, for his valuable help and encouragement.

SOME ASPECTS OF NATIONAL HEALTH SERVICE Insurance Aspects of Occupational Dermatitis

BY

M. FEIWEL, B.A., M.B., B.Ch., M.R.C.P.

Late Specialist Dermatologist, Royal Army Medical Corps

It is likely to be of importance to many doctors when they leave the Armed Forces to be aware of the present position as regards dermatitis developing during the course of a man's work. General practitioners, industrial medical officers and dermatologists will frequently be concerned with the problems discussed below.

Now that industrialization is spreading to so many new countries, the workings of the British Social Insurance Scheme may be of interest to doctors from overseas.

The method, whereby a workman incapacitated by injury or disease due to his work is compensated financially, changed, when on July 5, 1949, the National Insurance (Industrial Injuries) Act, 1946, became operative. The Workmen's Compensation Act, 1925, now only applies where accident or disease occurred before July 5, 1949.

The steps whereby the patient obtains the benefits of the new Acts will be described with special references to dermatitis, one of the most common industrial diseases and one where medico-legal problems have always presented points of difficulty.

Industrial injuries insurance aims at providing some protection to employed persons while they are temporarily or permanently unable to work. Those people that are "self-employed" and "non-employed" are not included in the benefits.

A patient becomes entitled to "Injury Benefit" if he contracts one of the "Prescribed Diseases" and it is held to be due to the nature of his employment.

Prescribed disease No. 24 (b) includes inflammation of the skin produced by dust, liquid or vapour, that is certain forms of "occupational dermatitis."

The machinery which obtains the benefit for the patient is set in motion by the family doctor who certifies incapacity for work in Part I of the First Certificate and supplies his diagnosis (say dermatitis or eczema). If the patient considers that his disability is due to his work he fills in Part IV of the certificate.

The certificate is presented to the local office of the Ministry of National Insurance. In a straightforward case, such as injury at work, the insurance officer may authorize payment of injury benefit (45s. a week, excluding

allowances), but in the case of dermatitis the insurance officer will ask for a second opinion. This is provided by the "examining medical practitioners," usually general practitioners who have knowledge of local industries and who may be Appointed Factory Doctors employed by the Ministry of Labour under the Factories Act.

If the examining medical practitioner expresses the opinion that the claimant is suffering from prescribed disease No. 24 (b) due to being employed in an occupation involving exposure to dust, liquid or vapour, the insurance officer will have the necessary data to make a formal diagnosis and to issue injury benefit. If the claim is not allowed, the patient is informed that he can appeal to a medical board. The Regional Medical Officer of the Ministry of National Insurance will arrange for the claimant to be seen by a dermatologist so that the board has his report available as well as any statements by a doctor or other person which the patient may wish to submit.

Again, if the examining medical practitioner is uncertain about the case, a specialist's report and a medical board are arranged by the Regional Medical Officer.

Injury benefit is paid while the patient is off work for as long as 26 weeks; after this period or on earlier return to work a new type of benefit comes into operation, "disablement benefit."

Disablement benefit is assessed by a medical board. As is the practice in the Ministry of Pensions, this board assesses disability as a percentage.

The percentage disability is computed with regard to the standards of a man of similar age but takes no account of the particular occupation of the patient.

This point is of importance in the case of dermatitis. At the sitting of the board the patient may have only minimal skin trouble and his percentage assessment on that account be very low, yet he may be incapacitated from return to his former employment by reason of having developed a specific sensitization to a substance encountered at his job. A Special Hardship Allowance will cover such a case.

Disablement benefit is paid as a lump sum, or, if over 20 per cent as a weekly pension. If the claimant is dissatisfied, he can appeal to a Medical Appeal Tribunal, the chairman of which has a legal qualification.

The above is a sketch of the official scheme. The discussion following is personal comment. Only the "dermatitis-eczema" problem is under consideration.

There is no doubt that the new Act is a decided improvement upon conditions prevailing under the Workmen's Compensation Acts, when industry and not the Government was responsible for reimbursing the injured workman and when cases of occupational dermatitis frequently ended in the courts, this litigation often unfavourably affecting the medical recovery of the patient.

The principle that an employed person engaged in injurious and hazardous occupation should, for the same insurance premium, be compensated at a

higher rate if he falls victim to its hazards, compared with that of sickness benefit for incapacity sustained by him from natural causes, or by those in safer occupations, is obviously a just one.

In the straightforward cases, the patient is soon in receipt of his injury benefit at the higher rate, and in the case of prolonged and permanent illness he becomes, in addition, eligible for the lump sum settlement, or the weekly pension of the disablement benefit.

However, many workmen, aware of the prejudice of employers against skin cases, prefer not to seek certification and their entitlement to injury benefit.

By contrast, many others will obtain their increased benefits when their "rights" to them may be doubtful. For example, a workman may develop an exogenous dermatitis not from contact with irritants at his job so much as from those encountered in his home, hobbies, garden or garage. Such cases will be rare, but very common are those in which the differential diagnosis between an exogenous dermatitis and a constitutional eczema has to be considered with reference to certification as a prescribed disease No. 24 (b).

Many dermatologists believe that external irritants can precipitate a constitutional eczema directly. Sequeira, Brain and Ingram (1947) recognize industrial dermatitis in "an admittedly eczema-prone subject engaging in an unsuitable occupation and so experiencing a provocation or aggravation of his constitutional eczema as the result of contact with dust or liquids at his work." Hellier (1950) puts it another way "Certain cases of exogenic dermatitis due to primary irritants may produce a very similar picture (to nummular eczema) and only a careful history will reveal whether the external irritant or the constitutional factor is the more important." There is no doubt that a seborrhœic dermatitis or a constitutional eczema can be aggravated by exposure to dust, liquid or vapour.

As a result, many cases are certified under 24 (b), when, though contact with irritants is a factor, the main trouble is constitutional. But it is often a "bad bargain" for the Government to accept responsibility for skin diseases which have been described as a "dermatological bad bargain."

Case Report.—Mr. A. B., aged 60. This patient had been discharged from the Army on dermatological grounds during World War I. Since then he had many specialist opinions, medical boards, hospitalization in Ministry of Pensions Hospitals and others, and had suffered prolonged spells of unemployment on account of frequent relapse of incapacitating skin condition. When first seen by me in 1946, he had an extensive scaling and lichenified skin eruption and remained under hospital out-patient treatment for some two years. During this period, he required many certificates and reports for the procurement of his pension and, in addition, continued to have medical boards from the Ministry of Pensions to ascertain the extent of his disability and to establish the size of his pension.

To secure this man his pension rights demanded a heavy expenditure of medical-man-hours. It seems likely that as the number of cases multiply the Ministry of National Insurance will find that the number of specialist

opinions and medical boards required for any one case of relapsing skin disease is quite large and rather frustrating to all concerned.

It may not actually be in the interest of the patient that his skin condition should be attributed to his work. The patient may become afraid of his work or cling to his disability because it is a source of income, albeit small. Hewitt (1950), investigating unemployment and resettlement of chronic skin cases, concluded that the effect of the diagnosis and certification of industrial dermatitis is unfavourable to the prognosis. The Ministry of Insurance doctors, as guardians of the purse, may even encourage invalidism.

Case Report.—Mrs. B. C., aged 50, was employed as part-time cleaner in a school. She sustained an attack of dermatitis and received injury benefit and disablement benefit. Nine months after the commencement of her illness she still had areas of lichenified dermatitis at each wrist. At a recent medical board she had been told by the doctor that she should not resume work until the skin had completely healed.

But that an eczematous skin condition is not necessarily progressive is shown by the following case.

Case Report.—Mrs. C. D., aged 48, employed as a hospital cleaner. She developed a dermatitis of the forearms over a year ago, but ignored advice that she might have to give up her job completely. She continued her cleaning, protecting her skin with zinc paste and minimizing her contacts. She has been under observation for over a year, the dermatitis has healed and then she has suffered minor relapses from time to time. The patient has experienced discomfort but has, on the other hand, retained her wages and her job.

Emphasis on compensation may obscure the paramount and pressing need of the patient, whose skin has broken down, to be cured and restored to earning capacity.

Not only will the relative importance of exposure to external irritant, psychological precipitating factors, and inherent constitutional "eczema-proness" of the patient and his skin, in any one case, determine the response to therapy, but their successful assessment will materially influence the prognosis. This is especially the case if the implications of the assessment can be brought home to the patient, and steps can be taken early in his illness to initiate those modifications of working, social and home environment which may be necessary to prevent relapses.

One can visualize that, in a difficult case, this may well be beyond the resources of the family doctor, even when assisted by the hospital dermatological specialist.

Perhaps in any one locality it might be worth while setting up a panel composed of family doctor, dermatological specialist, industrial medical officer, Ministry of Insurance and Ministry of Labour officers and, if required, a psychiatrist.

Each expert would contribute towards the solution of the domestic, social, psychogenic, dermatological, financial rehabilitation and re-employment aspects of the patient's illness.

These agents of the social service may actually already be involved in

the handling of any one case but, at present, their efforts are unco-ordinated and often in ignorance, one of the other.

Concerted and co-operative action early in a patient's illness may prevent drift into dermatological invalidism. The handling of the chronic and relapsing skin case on the other hand is often exacting and unrewarding, and re-employment difficult to secure (Hewitt, 1950).

REFERENCES

- HELLIER, F. F. (1950) In *Modern Practice in Dermatology*, p. 132, Ed. by G. B. Mitchell Heggs. London: Butterworth.
- HEWITT, M. (1950) *Lancet*, **2**, 921.
- SEQUEIRA, J. H., INGRAM, J. T., and BRAIN, R. T. (1947) *Diseases of the Skin*, p. 345, 5th ed. London: J. and A. Churchill, Ltd.
-

HYPERTHERMY BY ELECTRIC BLANKET

BY

R. R. WILLCOX and W. A. FLYNN

(Late of the Military Isolation Hospital, Harrow Road, W.9)

THE place of the hypertherm in the treatment of venereal diseases is not as secure as it was and, indeed, its use has never been practised to the same extent in Great Britain as in the U.S.A. Even so, during the years immediately preceding 1945 before penicillin came into general use, it was much in demand for the treatment of chronic sulphonamide-resistant gonorrhœa and non-specific urethritis, gonococcal arthritis and Reiter's disease. It was also used for salpingitis, gonococcal and syphilitic iritis, interstitial keratitis and neurosyphilis.

Nowadays penicillin, streptomycin, aureomycin, chloramphenicol and terramycin, apart from the sulphonamides, are the first lines of attack upon gonococcal and non-gonococcal urethritis and, as a result, fever therapy is but rarely required. In any event before calling upon the hypertherm, with its specially allocated trained staff, there is pyretotherapy by intravenous T.A.B. which can first be tried. In the case of neurosyphilis, also, penicillin has done much to minimize the indications of fever treatment with both hypertherm and artificially produced malaria, although there is still some difference of opinion as to whether the results are better with penicillin alone or with penicillin combined with fever. However, the risk of severe reactions with fever limits its use at least until penicillin has been given a fair trial. Syphilitic optic atrophy, a much more serious condition, may, however, benefit more by the addition of fever. King (1946) considers "there is little doubt but that the hypertherm will keep its place."

During World War II the treatment by hyperthermy in the Army was, for several years, under Lieut.-Colonel King at Netley Hospital, and the facilities there were used by the other Services. The results obtained at this centre on 319 cases of sulphonamide-resistant gonorrhœa have been published by King, Williams, and Nicol (1943), and on 129 cases of infective arthritis (49 proved gonococcal) by King, Williams, Nicol and Loundou (1946). The gradual decline of the effectiveness of the sulphonamides, together with the not infrequent occurrence of complications, necessitated the increasing employment of fever at the other centres not so equipped.

The experimental ventures in the improvisation of a hypertherm by the use of an electric blanket are described in this paper. The work, suggested by W. A. F., was performed by the authors in association with Dr. (then Lieut.-Colonel) James Marshall, now of Johannesburg, during the

months February through May 1943. The results seemed to suggest that the experiment was a technical success but a therapeutic failure.

TECHNIQUE ADOPTED FOR "HYPERTHERMEGA" THERAPY (Fig. 1).

The patient's own bed was used for the purpose and the head of it was raised on blocks to facilitate the drainage of sweat towards the feet. A wooden board was placed over the wires of the bed over which was laid a mattress. On the mattress was placed the first of two "Thermega" electric blankets covered with a mackintosh sheet in order that it should not become drenched with perspiration. The patient then lay on the mackintosh and was covered from neck to feet by a second mackintosh. The ends of both waterproof sheets projected from the foot of the bed and there was a potential opening between them so that perspiration could be drained into a bucket placed in position for the purpose.

Over the upper mackintosh was laid the second electric blanket which covered the patient except for the face and neck. Over this four woollen blankets were used to tuck the patient securely into bed, except at the foot where they were only loosely secured. The patient was then ready for the treatment to commence.

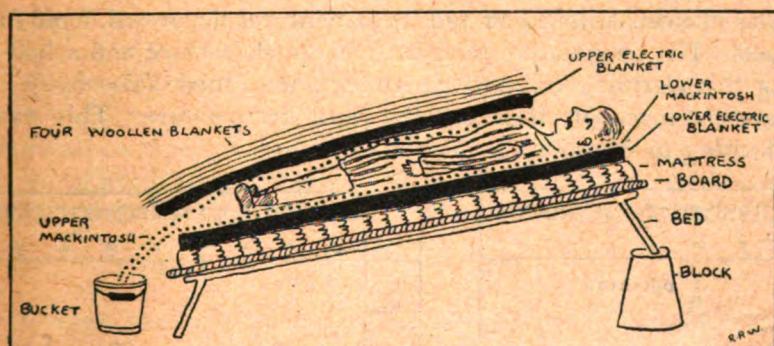


FIG.—Technique adopted for "Hyperthermega" therapy.

THE TREATMENT

Both blankets were then switched on and the patient's temperature and pulse were recorded by an orderly in constant attention. The temperature nearly always rose fairly rapidly reaching 103° F. in one and a quarter to two hours—after which time it could be maintained at that figure without further rise by switching off one of the blankets. We had no difficulty in inducing the temperature or in maintaining it. In one case it rose very rapidly to 106.8° F. and the patient became delirious. When both blankets were switched off the temperature returned to normal in an average of three hours.

No medicaments, apart from sips of fluid, were given to the patient while under treatment. The degree of pyrexia, and the length of time it could be

maintained were in all cases dictated not by the powers of the electric blanket but by the tolerance or otherwise of the patient, and risk of electric shock from leakage of perspiration into the blanket.

ILL-EFFECTS

The patients, while between the blankets, usually complained of heat, backache and headache and perspired freely, losing into the bucket from one to two pints of sweat. At first, in some instances, the perspiration drenched the blankets and tinglings were felt by the patient from the under blanket. This was regarded as an indication to terminate treatment. On one occasion, when taking the temperature, the orderly himself received an electric shock although the patient was comfortable. The more dangerous electrical defects were remedied by putting an additional waterproof cover over each electric blanket although static charges were never entirely eliminated.

One patient suffered from hyperpyrexia. He was placed between blankets at 1215 hours. At 1315 hours his temperature had reached 101.4° F. (fig. 2), and at 1415 hours to 104° F. when one blanket was switched off. The other blanket was left on until 1445 hours when his temperature was 105° F. At 1500 hours he became delirious and bit the thermometer when it was placed in his mouth. His axillary temperature was then 106.6° F. The second blanket was likewise switched off and the patient was uncovered, tepid-sponged, and fanned. The temperature returned to normal in three and a half hours. Following this alarming reaction experiments were made (also by W. A. F.) to evolve a thermocouple to record the rectal temperature. This was never perfected owing to vibration.

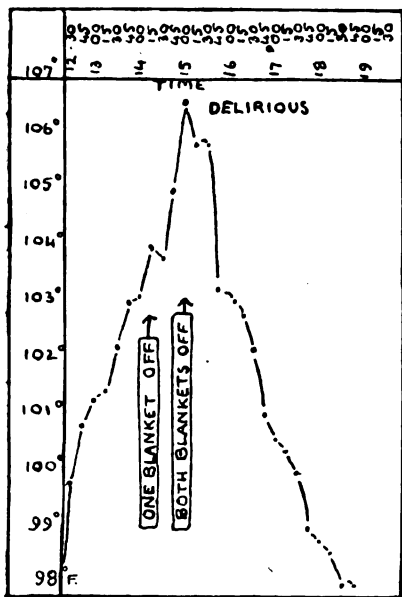


FIG. 2.—Hyperpyrexia.

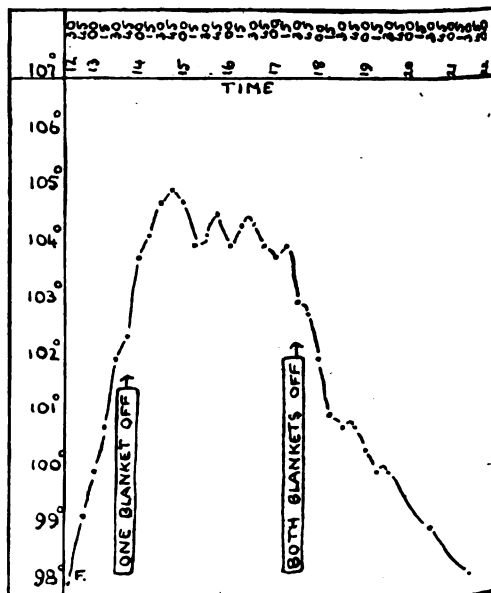


FIG. 3.—Prolonged fever.

TEMPERATURE RECORDS

Seventeen treatments were given to 12 patients. The temperature charts of twelve of these fever sessions are still available for study and eight show essentially similar pyrexial responses. The maximal and minimal quarter-hourly temperatures for the first two and a half hours in these 8 cases were:

		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$
Max.	...	99.8	100.8	101.8	102.8	103.6	104	104.2	104.8	105	105
Min.	...	97.8	99.0	99.4	99.8	100.4	101	101.0	101.4	102.2	102.6

The fever took two and a half hours to four and a quarter hours to reach normal after the current had been switched off. Therapy was terminated either for electrical reasons or on account of intolerance by the patient. The chart of the patient in whom fever was most prolonged is appended (fig. 3). Of the four other charts, in one the temperature took eight hours and in the other two days to settle completely. Another two charts concern two sessions given to the same patient, a large man with whom proper insulation from cooling agents was difficult. On the first occasion the fever reached only 102.2° F. after three hours between the blankets and, after the patient had been removed from the blankets and the temperature had settled again, it rose spontaneously an hour later to 103.8° F. On the second occasion it reached 103° F. in two and a half hours but, although the blankets were left on for five and a half hours from the onset of treatment, the temperature dropped slowly to 100.8° F. and the treatment was abandoned. These two indifferent responses were obviously due to excessive heat loss. The remaining abnormal chart concerned a man who already had a temperature of 101.8° F. when put between blankets. It reached 103.2° F. in an hour and this was maintained for two hours. He still had a temperature of 103.2° F. on the next day.

PULSE RECORDS

The average maximal pulse-rate was 126 beats per minute, the lowest reading being 104 and the highest, albeit for a short period, 160. In three instances it exceeded 130 but in none was the treatment modified on account of the pulse-rate.

THERAPEUTIC RESULTS

Of the 12 cases treated 7 had relapsing gonorrhœa which was sulphonamide-resistant, one had gonorrhœal epididymitis, one gonorrhœal rheumatism, one non-specific urethritis, one non-specific epididymitis and one a syphilitic iritis.

The rheumatic case was markedly relieved of his pains and the two epididymitis cases showed less pain immediately after treatment. Apart from this the results were disappointing for in only one case (the patient with gonorrhœal rheumatism) was the stay in hospital curtailed. The cases of sulphonamide-resistant gonorrhœa did not appear to benefit as well as if fever had been given by intravenous T.A.B. vaccine. It was considered likely that

the results would have been better if sulphonamides had been combined with fever but, owing to possible dangers arising from the conditions then prevailing, this was not tried.

CONCLUSIONS AND SUMMARY

The technique of hyperthermy by means of electric blanket has been described. 12 patients were treated with seventeen fever sessions and the records of twelve of which have been studied.

In view of the disappointing clinical results, and one alarming case of hyperpyrexia, the "hyperthermega" treatment was abandoned. There is little doubt, however, that artificial fever may be easily produced by the method described although its dangers in the manner used were considered to be too great for general use.

Such a method is not likely to play any part in the present-day treatment of venereal disease but the results are recorded partly as a historical curiosity and partly lest this type of treatment may have some application in other fields of Medicine.

REFERENCES

- KING, A. J. (1949) *Medicine Illustrated*, 3, 201-5.
—, WILLIAMS, D. I., and NICOL, C. S. (1943) *Brit. J. vener. Dis.*, 19, 141.
—, —, —, and LOUNDOU, J. (1946) *Brit. J. vener. Dis.*, 22, 1.
-

A CASE OF CONGENITAL ABNORMALITY OF THE FIRST RIB

BY

L. GOUT, M.D.

Civilian Surgical Specialist

AND

Lieutenant J. STEVENS, M.B., B.Ch.

Royal Army Medical Corps

PREFACE

CASES of congenitally abnormal ribs are common, and more often than not give rise to no symptoms. The following case is therefore presented as being of interest because of the fact that the symptomatology was that of a cervical rib syndrome.

History.—W. M., a private soldier aged 43. Three months before admission had a rather sudden onset of numbness, and pins and needles in the left hand. These symptoms were first noticed on a cold morning, whilst at work, and lasted for about an hour. The numbness and paræsthesiæ recurred almost daily and gradually involved more of the hand and wrist, persisting for about two hours at a time. Three weeks after the initial symptoms the hand started to become white and then blue. During an attack, it was noticed that there was some swelling and stiffness of the hand. Attacks were most prone to occur in cold weather.

For two months prior to admission there was no change in the complaint.

Past History.—The patient had noticed no trouble before, even as a labourer before his military service, and during the war.

In 1929, however, a swelling was noticed at the left side of the root of the neck, but this was not investigated.

Family History.—No other member of the family has had any similar trouble to the patient's knowledge.

Physical Examination:

- (i) Healthy man.
- (ii) No abnormality in chest, abdomen or central nervous system.
- (iii) Heart, size, and sound normal, no murmurs.
- (iv) Pulse regular and equal at both wrists.
- (v) B.P. in each arm was 130/90.
- (vi) There was a poor peripheral circulation in both upper arms, more marked on the left side than the right.
- (vii) In the left supraclavicular fossa was a visible swelling which pulsated. Palpation showed this to be the subclavian artery overlying a bony tumour.
- (viii) There was no muscular wasting or weakness and no loss of sensation in the left arm or hand.

X-ray as follows (see fig. 1).—A diagnosis was therefore made of peripheral vascular disturbance on the left arm due to a congenitally abnormal first rib on that side.

Operation.—An exploration was made (see fig. 2) through an incision which commenced 1 in. above the left sternoclavicular joint and extended upwards and backwards to the border of the trapezius muscle. The *platysma* muscle was divided, as was the deep fascia. This was retracted, with the phrenic nerve, downwards and medially.

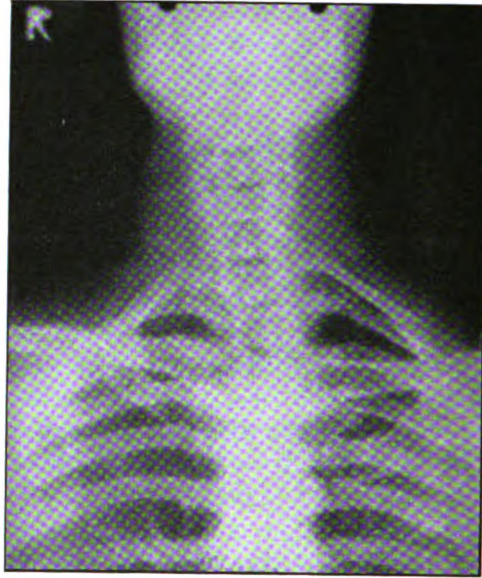


FIG. 1.

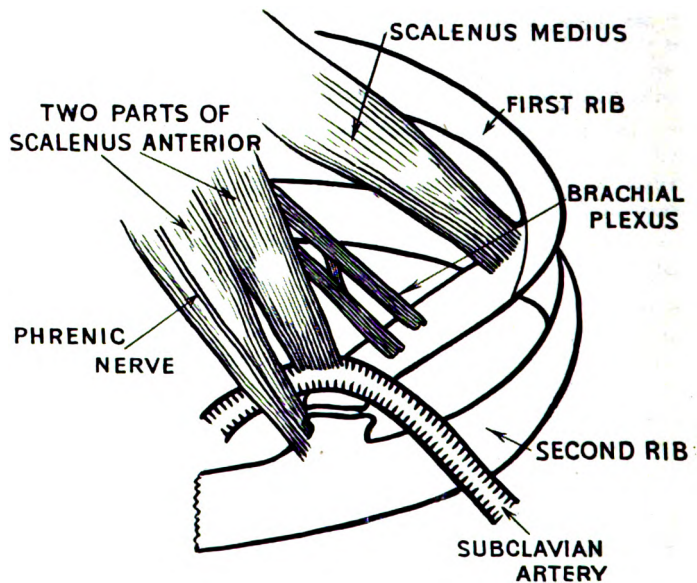


FIG. 2.

Scalenus anterior muscle was found to be inserted as two distinct parts, of which one was attached to the wall of the subclavian artery. The other portion was inserted into the capsule of the joint between the first rib and the upward projection from the second rib. Scalenus medius was inserted in the normal way and there was no abnormality in the anatomical relations of the brachial plexus. The transverse cervical and supra-scapular arteries were normally situated.

The scalenus anterior muscle was dissected off the joint and off the wall of the subclavian artery. During this dissection a periarterial sympathectomy was performed. The free subclavian artery was retracted medially and downwards and the cervical pleura freed from the inferior surface of the abnormal rib. A portion of the first rib 2 in. long was then removed as well as the projection of the second rib, without damage to the vessels and nerves.

The wound was closed in layers and a corrugated drain was left inserted for twenty-four hours.

Post-Operative Result.—The wound healed cleanly. (X-ray—post-op. see fig. 3.)

The patient noticed considerable immediate improvement in his symptoms, and this improvement has been maintained. No further attacks of numbness and paræsthesiæ or colour change have been noticed.

The blood pressure in each arm remains the same as before operation, but the peripheral circulation is considerably improved in the left hand.

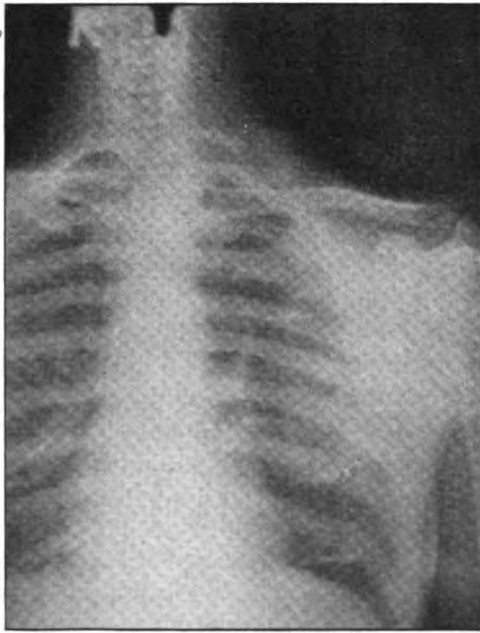


FIG. 3.

SUMMARY

A case of abnormal first rib is presented. It is interesting to note that the symptoms were entirely vascular and that there was no lesion of the brachial plexus.

Cases with symptoms so disabling to require operative treatment are very uncommon.

A brief review of the literature shows that patients with these symptoms are usually about 40 years of age, and more often women than men. The explanation offered is that there is a tendency for the shoulder girdle to drop in people of this age-group.

EPISODES OF A GENERAL HOSPITAL IN WAR

BY

Colonel K. FLETCHER-BARRETT, *O.B.E.*, M.B., F.R.C.S.

Continued from page 288

It was now decided that we were to move again, and because the railways, etc., in France were congested and overloaded, we handed in all our equipment to Ordnance. The personnel were sent back to England, where we arrived once more in Goodwood on November 11, 1944. I promptly proceeded to send as many as possible off on leave, for I had good reasons for believing that we should not be there for long. Some of the Scots who took the chance of spending the New Year north of the Border were unlucky. Whilst in Goodwood at this time I came across two Gunner Officers T.A., who in civilian life were dentists, and who had no intention whatever of doing any dentistry until after the war. I have often wondered if they succeeded in gaining their objective!

On December 26, 1944, we moved off to Ostend, and ended our journey in Ecloo, near Ghent, where we were accommodated in a Convent, which in peacetime includes a large and extremely well-equipped girls' boarding school. Here we opened up 1,400 beds. Unfortunately we were given another hospital's equipment, which we were firmly convinced had not been packed up as well as our own, there were numerous breakages and deficiencies, moreover we lost our piano at last! The unit who got our equipment must have had a surprise, although I did hear that a lot of damage had been done to it by floods and rain.

However, we opened up quickly and were soon involved in another mild diphtheria outbreak. It was mainly among the Canadian Forces who bitterly resented the enforced long stay in bed, so much so that quite a number broke out of hospital. I am happy to say with no ill-effects, perhaps the quantity of beer consumed may have had some bearing on this!

By now we had lost a number of our younger officers, who had gone to forward units, and many of whom had been replaced by women. This in no way interfered with our efficiency or general happiness, although we regretted their departure. We still had both of our rugby and soccer teams, which really came into prominence during the Normandy days. During the whole season, the rugby team was unbeaten, which included playing Tangmere R.A.F. twice whilst we were at Goodwood. The soccer team lost only one match, and that was their own fault for fiddling about with the ball and trying to show off. Most of the players were in both teams, which in itself must be unusual, and it was a grand sight to see how many of the unit, including our women, turned up to yell at the games.

It was somewhere about this time that an instruction was published to the effect that V.A.D.s were to become A.T.S. One day I had a visit from a rather pompous A.D.M.S., he was one of those fellows who, in peacetime, had left the Corps as a relatively junior officer, but, who in time of war, for some mysterious reason blossomed forth as an A.D.M.S. Almost his opening remark to me was: "About your V.A.D.s, I hope you have got separate accommodation, dining, rest rooms, etc., for them." I was a little incensed, because almost the first thing I was taught in my regiment in 1914 was that an officer looked after his soldiers before he even thought of himself, so, with my tongue in my cheek, I replied: "An A.C.I. has just been published, and also the D.M.S. has drawn attention to the fact that they are now A.T.S." He puffed: "Yes, I know all about that, but the real thing is that they are to be treated as A.T.S. on duty, and as ladies off duty." My final remark was: "I believe that Mary Churchill is coming round shortly, may I tell her your interpretation of the A.C.I.?" The A.D.M.S. departed muttering: "Don't be such a ——— fool." Before long this Senior Officer was known in the Unit as "Heil - - - -."

An incident of uncommon interest in Ecloo was when one of my A.T.S. lasses was married to a sapper R.E. They were both Roman Catholics. Special permission was given by the Roman Catholic Bishop of Ghent, who also lent his vestments to my Priest, for the ceremony to take place in the Chapel of the Convent. It was the first time in the many hundreds of years history of the Convent that such an event had been held there. The ceremony consisted of the marriage, followed by a Nuptial High Mass, during which the Choir of Nuns sang. It was most impressive, and was followed by a small reception given by the Reverend Mother Superior in celebration.

At Ecloo we perfected our Air Evacuation drill. The airfield was about five miles from the hospital, but as it had been attacked on occasions by low flying enemy aircraft, it was agreed not to keep patients on the airfield pending evacuation because of the bad effects on their morale. Therefore the following drill was adopted:

(a) There was a R.A.M.C. Liaison Officer living at the airfield with a *direct* telephone line to my hospital. As soon as he received information of aircraft becoming available, he telephoned me.

(b) At the hospital, a ground floor ward of 100 beds was reserved for patients awaiting evacuation, including those from nearby hospitals, who were transferred in as soon as they were fit to travel.

(c) Four ambulance cars were stationed at the hospital, and located adjacent to the evacuation ward.

(d) A patient's kit was packed and kept alongside his bed. It was agreed that at all times two ambulance car loads would be kept ready to move at once. Documents were ready to be pinned to the patient's clothing as he left the ward; in this way he was checked out

This system eliminated the A.D.M.S., who was informed after the evacuation was completed, and it was devised after our experiences in Normandy, where aircraft frequently had arrived and departed before contact could be

made between the A.D.M.S. and myself, owing to congestion on the telephone lines, and the fact that calls had to go through two or more exchanges. With the new system, it was a normal occurrence for patients to be on their way to the airfield within ten minutes of my receiving information from the Medical Liaison Officer. The latter must be R.A.M.C. as the R.A.F. Medical Officers are too busy on other matters to act in this manner. As far as I can recall, we only missed one flight, which was when the R.A.F. were warned of approaching enemy aircraft, and took off empty. The essentials for this system are a R.A.M.C. Medical Liaison Officer, living on the airfield, with a *direct* telephone line to the evacuation hospital.

After we had been in Ecloo for a while, I was ordered to fly up to Belsen. I arrived there to find a General Hospital (600 beds), a C.C.S. and a Light Field Ambulance in possession. There were some 14,000 patients of whom about 11,000 were women. Practically every common disease known to medicine was amongst them; also, there were many cases of malnutrition and tuberculosis. Patients were dying at about a rate of 200 daily at the time of my arrival. The Concentration Camp had not been completely emptied, so I was able to visit and see the appalling conditions under which these people were living. The order was that 29 General Hospital would move in, and the other units would move out as quickly as possible. Prior to leaving Ecloo, I had given orders for my unit to be packed up, and to move up to join me.

I selected a site for the unit camp, and made arrangements for water, supplies, etc., so that as the Advance Party came in, tents were erected. On arrival of the main body, all tentage had been erected, and a meal was waiting for them. Fortunately the patients were in the German S.S. Barracks, and very excellent barracks they were too, so the medical staff were able to get down to professional work as soon as they arrived. We had been there two or three days when I received a signal from G.H.Q., with words to the effect: "Conditions at Belsen unsuitable for A.T.S. Make immediate arrangements for their evacuation." I whipped back a signal: "If conditions suitable for Q.A.I.M.N.S. considered suitable A.T.S." Shortly afterwards a very senior officer of the A.T.S. appeared on the scenes. In the meantime my A.T.S. and V.A.D.s had got to hear of this, and went about muttering in obvious anger; I anticipated an unpleasant scene. However, the A.T.S. Officer departed very satisfied if a little crestfallen. A little later Miss Churchill turned up, but I did not think that she would be interested in the A.D.M.S., whom we had left well behind in Belgium.

A deal of the unpleasant work had been done by the medical units which we were relieving, but it took us some three or four weeks before we managed to get the death-rate down to single figures. When I had arrived, the last few huts in the Concentration Camp were being evacuated, and when empty destroyed by fire. It is of interest to record how the people were dealt with. An ambulance car arrived at a hut, the inmates who were to be removed were stripped naked, so as to leave behind their infested clothing, they were covered with a clean blanket, loaded into the car and taken to the hospital. To many of the patients, the presence of lice was more or less normal, so they were

completely mystified by the requirement of stripping. Possibly they had heard that the British people were a curious race, and therefore the passport to hospital was to appear naked, with the result that, as each ambulance arrived, it was met by a crowd of naked women, all of whom tried to be first into the car.

On arrival at the hospital, they were taken to what came to be known as the "Human Laundry." It was a large stable in the barracks, in which a number of six-foot tables had been set up, with a team of German nurses installed. Here the patients were stripped again, thoroughly washed, shaved, smothered in D.D.T. powder, robed in fresh blankets, and taken to the wards where they were given pyjamas. The blankets in which they had arrived were steam disinfested and used again.

It was an amazing sight in the Human Laundry, men, women and children were dealt with as they arrived irrespective of age or sex. There was not time or facilities for privacy, and it was done in this way so as to clear the Concentration Camp as quickly as possible. It must be remembered that there were many thousands, who had spent a considerable time in this loathsome camp, and every one of them was anxious to be the first one out.

The dirty ambulance cars were disinfested at the end of each day, as also were all personnel who had come into contact with the infested people. At this time very long hours were worked, and all available people were employed, with the result that there was always a mass of orderlies, drivers, B.R.C.S. and other workers milling around from soon after dawn until nightfall. One strange fact which struck me was that in very emaciated women the breasts seemed to be the last organs to lose their fat. Was this an attempt of nature to provide for the survival of the race?

Apart from emaciation and disease, a great many of the inmates had degenerated during their confinement in the camp to such an extent that they had lost all sense of civilized usage. One of my first sights on visiting the Concentration Camp was to see four or five men and women, sitting on a pole over a trench type latrine without any privacy of any kind. I was struck also by the great preponderance of women over men, and the small number of children, although many of the women had become pregnant during the period of incarceration. They were of practically all European nationalities, and even included one Chinaman.

Another matter of interest was the rate of recovery of normal mentality, comparing the women with the men. The B.R.C.S. workers were able to get illustrated newspapers and sewing materials for the women, who rapidly got to work with the aid of pilfered blankets, etc., from which they made coats, skirts and other garments. It was completely impossible to get the men to take an interest in any form of activity, apart from obtaining locally brewed fire-water from their friends in the Dispersal Camps. The result was a rapid improvement in the women, whilst the men just sat around, or stayed in their beds until they were almost manhandled out to the Dispersal Camps, from which they returned to their own countries, if they so wished, or if not, they went to swell the

numbers of displaced people in Germany. From time to time, the Russians marched in without a by-your-leave, and picked up those they wished to interview: it was completely beyond our strength to provide guards to prevent this.

During the early part of our stay in Belsen, we received assistance from volunteer medical students. One contingent came from Belgium, and another from Great Britain. Both of these did excellent work, which enabled our own medical officers and Sisters to concentrate on the more serious cases. However, one of the British students arrived home lousy; this caused a high level enquiry for me to explain why this had happened. We had quite enough to do, without going into details of this kind, and as all possible arrangements had been made for the disinfection of anybody who came into contact with the patients. I replied somewhat tersely, that it was presumably because he had not enough sense to keep himself clean!

Just outside the Barracks there was a small German Military Hospital of about 100 beds which, in peacetime, was used for the soldiers occupying the Garrison; at the time of writing it was reserved for our own sick. I mention it because it was built with the characteristic German thoroughness, which was demonstrated by the Commandant's Office being provided with double doors and windows, it is particularly cold in this part of Germany during winter, and also an electrical temperature recording machine, similar in appearance to time clocks in big establishments in Great Britain. On this machine it was possible to ascertain the temperature in any part of the hospital, even including the mortuary!

A short while before leaving Belsen, the Vatican Delegate presented the Matron, Miss G. S. Tyndall, Q.A.I.M.N.S. and myself with bronze medallions in appreciation of the work done by 29 General Hospital. The medallion is of beautiful workmanship, which on one side depicts H.H. the Pope, whilst on the reverse is the Papal Arms. As neither of us are Roman Catholics, it was an honour which we received with unusual pleasure.

There were many other things about Belsen, including political interferences from outside sources, but I think that I have mentioned enough to give some general impression of this interlude in the strange duties with which the British Army is faced from time to time.

Once again came orders to move, now to Hanover. I went to do a reconnaissance, to find an excellent German hospital, built, I believe, for the Luftwaffe, and designed for some 250 beds. It was still equipped with the large German beds, which not only took up a great deal of space, but also were too large for our mattresses and linen. Apart from this the beds were in the process of being removed when I arrived, as they were required for the German Army sick and wounded, who at this time were scattered all over the country in penny packets, and who were being concentrated into various hospital camps. My orders were to open up 1,200 beds with a crisis expansion up to 1,400. To do this I required every bit of available space. The removal of the German beds led to a scurrilous article by a Member of Parliament, in one of the less important periodicals

published in England, in which the M.P. deplored the substitution of the "beautiful, comfortable German beds" by the inferior British pattern, and gave the opinion that the increased number of beds were being put in so that the Commanding Officer could draw more charge pay!! This led to a Ministerial Enquiry which in due course filtered down to me. Apparently nobody had remembered that a Colonel is ineligible for charge pay, so I produced a reply which was very much to the point. As far as I am aware the M.P. never made any attempt to retract the remarks in the periodical, which I suppose was to be expected, but practically the whole of my unit was blazing with anger, and I would not be surprised if the political party concerned lost a few votes as the result of this effort.

There is little to say about Hanover, because the end of the war was rapidly approaching, but we had some casualty work before we reverted to the normal routine of hospital work. An outstanding event was the initiation of exchange visits between officers and men of the R.A.M.C. with those of the United States Medical Corps. Direct exchanges were made, and each party took over the professional duties of the other. It was a very happy idea, which I know was appreciated and liked by all of the parties who worked in each others' hospitals. The Americans certainly went down well in our officers' and serjeants' Messes, and I am quite sure that many a yarn was swapped among the other ranks and enlisted men. Another amusing incident was when my batman disappeared with a jeep, an A.T.S. coat and skirt, and a German girl to make things nice and shipshape. They were picked up eventually in Belgium some six weeks later. In the meantime the girl's mother had been badgering me almost daily on the matter, not to mention the man's wife!!

When release from the Army commenced, it was with very mixed feelings that the men and women started to leave. We had been together, most of us, for over three years, during which we had travelled from Teheran to Hanover. My time to go did not come until March 9, 1946, by which time the original personnel of the unit had completely changed, so my departure was not such a sad affair as it might have been. All that remains of the old unit now is the Serjeants' Mess Dining Club, which meets annually in a different town at home, and to which I go when possible, to renew old friendships and memories. However, the name of the Unit still lives, as it has been reformed, and at the time of writing is once again on active service in the Far East.

In conclusion, I would like to pay tribute to all the women who served with me, our doctors, Q.A.I.M.N.S., V.A.D.s, and A.T.S. Apart from their work, their presence in the unit had such an excellent influence on all of us, and it was my privilege to give several of them away in marriage. I never had any serious trouble in my unit, all the men and women, not forgetting the British and Canadian Red Cross Officers, welded together to make 29 General Hospital a most efficient and very happy unit, which I was pleased and proud to Command.

Finally, as I am writing this from memory, some years after the events described, I must crave indulgence of the reader for any minor errors, which he or she may detect.

B.A.O.R. MEDICINE 1946 - 1949

BY

Brigadier F. J. O'MEARA, M.A., M.D., F.R.C.P.I., D.T.M.&H.
Late Royal Army Medical Corps
Consulting Physician, B.A.O.R.

Continued from page 298

(9) DISEASES OF THE RESPIRATORY SYSTEM

"1743-48. There was a steady incidence of pleurisy and pneumonia, especially in the winter, throughout these years. Consumptions were less common."

In 1946 classification of the pneumonias was difficult and the clinical picture was varied and confused. During the succeeding years it was possible to make a more accurate diagnosis. The basis of diagnosis was:

- (1) History of onset.
- (2) Physical examination.
- (3) Total white cell count.

Groups:

 - (a) above 10,000 cells per c.mm.
 - (b) below 10,000 cells per c.mm.
- (4) X-ray examination of chest.
- (5) Response to specific therapy : Sulphadiazine : Penicillin.
 - (a) response.
 - (b) no response.

On this basis during 1946 the majority of acute chest infections were atypical (secondary : virus) pneumonias. In a fair number of cases the causal organism was *Staphylococcus aureus*.

During 1947 typical (primary : bacterial) pneumonia became prevalent. The sulphonamide used in treatment was sulphathiazole. Atypical (secondary : virus) pneumonia was less frequent.

During January and February, serum in 4 cases from Berlin and 2 cases from Wuppertal gave a positive Hirst test for influenza, Type A. The same infection was in all probability present at Luneberg but serum was not sent to England from these cases.

Serum from a case of virus pneumonia at Wuppertal was reported from the Central Public Health Laboratory, London, N.W.9, to have been positive for "Q" fever (*R. burneti*).

Primary (typical : bacterial) pneumonia was the prevalent illness during

1948. When treated with sulphathiazole or penicillin, residual pleural effusions tended to delay convalescence. There was no serological evidence of the presence of influenza this year. A suspected virus pneumonia case from Berlin gave a positive serum agglutination for "Q" fever (*R. burneti*).

The prevalent pneumonia during 1949 was typical (primary : bacterial). It remained a mild infection. The sulphonamides used in treatment were sulphathiazole or sulphamezathine.

During the early months of the year, when investigating, the serological reactions of pneumonia cases a few sera gave a positive Hirst test for influenza virus "A" from Berlin and Hamburg. Sera sent from Hamburg from pneumonia cases also gave a positive reaction, in one case, to *L. icterohæmorrhagiæ*, in the other to *R. burneti*.

The acute chest conditions encountered during these years may be grouped as follows :

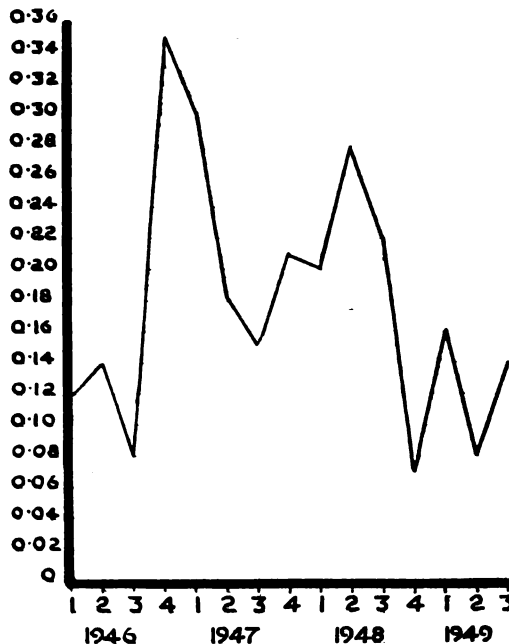
- (a) Pneumonia – bacterial.
 - (i) Pneumococcus.
 - (ii) Staphylococcus.
 - (iii) Streptococcus.
- (b) Pneumonia – virus.
 - (i) Atypical.
 - (ii) Influenza.
- (c) Pneumonia – rickettsial.
 - "Q" fever – *R. burneti*.
- (d) Traumatic – motor-car accidents.
 - (i) Pneumothorax.
 - (ii) Hæmothorax.
 - (iii) Hæmopneumothorax.
- (e) Pneumothorax – spontaneous.
- (f) Pleurisy with effusion.
 - (i) Insidious.
 - (ii) Acute onset : febrile : massive effusions that accumulated rapidly, were frequent in young soldiers.
- (g) Tuberculosis – lungs, acute, Graph 3.

This is an unfortunate story in which no progress can be reported. The incidence at the end of 1949 remains the same as in early 1946.

(10) VIRUS DISEASES

Since 1930 increased understanding of the clinical entities due to virus infections has depended on complicated cultural methods and serology. As no easy, rapid method of virus culture and identification has yet been attained, any attempt to rationalize clinical states with specific virus infections is open to criticism and must be accepted with reserve.

GRAPH III.



INCIDENCE OF TUBERCULOSIS (PULMONARY)—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

As this group of infections was a common cause of illness an attempt is made to rationalize them. Except for acute poliomyelitis in 1947 and 1948, and Stevens-Johnson's disease in 1949, the conditions, during the years under review, showed little variation.

- (a) Atypical Pneumonia (*See para. 9*).
- (a) Influenza (*See para. 9*).
- (c) Infective Hepatitis (*See para. 7*).
- (d) Homologous Serum Jaundice (*See para. 7*).
- (e) Acute Poliomyelitis.

The total number of admissions was in 1946—16; 1947—55; 1948—22; 1949—8. There was a parallel and rather higher incidence in the German civil population.

In Europe acute poliomyelitis is a disease in evolution. It had been my good fortune to acquire experience of cholera in Bengal in 1934, a year of undue incidence. This increased incidence came in four-year cycles and its arrival could be anticipated when the subsoil water fell and the water tanks became dry (Rogers, 1910).

In 1743 Pringle had noticed that jaundice without fever was a disease of the dry ground.

1947 was a year of drought throughout the B.A.O.R. area. As the summer

progressed and the subsoil water level fell, unit orders called each week for further economy in the use of water.

As the problem of the increased incidence of acute poliomyelitis was considered, it also came to mind that the incidence of infective hepatitis was rising (Graph 2) and the infectious mononucleosis was being more frequently encountered.

As German urban economy accepted a much lower standard of filtration and clarification of water, before chlorination than was average in England, prior to 1938, it seemed probable that water supplies generally were being contaminated by excreted faecal viruses. The winter of 1947-48 was mild, but wet and with a rise in the level of the subsoil water the incidence of these infections diminished.

(f) *Infectious Mononucleosis.*

The total number of admissions was in 1946—697; 1947—281; 1948—94; 1949—64.

Infectious mononucleosis was a very common infection. In the individual case it was frequently difficult to maintain a clinical diagnosis with confirmation from the pathologist. This was due to lack of experience in interpreting the significance of the white cells seen in blood films and the fact that a positive Paul-Bunnell reaction may be transient. All clinical varieties of the illness have been seen.

The average case may be considered to show two phases: fever, malaise, a mild sore throat which lasts for about two days, an interval of six days apparently well when the illness returns with fever, a maculopapular rash and an anginose throat or glandular enlargement. Abnormal white cells now appear in the peripheral blood for the first time, that is from the eighth to tenth day of the illness. It is also about this time that the Paul-Bunnell reaction may be found positive.

On occasion the illness in its various forms has very closely simulated enteric group fever and acute aleukæmic lymphoid leukæmia, clinically.

(g) *Acute Infectious Lymphocytosis.*

Two cases of acute infectious lymphocytosis were diagnosed during 1946.

(h) *Syndrome with Sterile Pyuria (Tidy, 1949).*

(1) *Abacterial pyuria*: Abacterial pyuria was frequently encountered. The cases presented as urethritis (non-specific) and were admitted to the venereal wards. They maintained a steady incidence and numbered about one-third of those admitted for urethritis. (Specific: Gonorrhœa—Graph 5.)

If the complication of cystitis was present they were admitted to the surgical wards. On cystology a typical picture was found which frequently responded to treatment with intravenous novarsenobenzol.

When epididymo-orchitis was present they were admitted to the venereal wards. Response to treatment with novarsenobenzol was less certain.

(2) "Reiter's Disease": There has been a steady incidence of Reiter's disease

and it has been frequently seen. The illness tended to occur in male patients, 30-45 years of age. A history of irregular sexual life was common in these patients. The total duration of the illness was three to six months. In general the course was:

- (a) Urethritis, conjunctivitis and arthritis had developed in the first month.
- (b) The acute phase of the illness reached its peak in six to eight weeks.
- (c) Total duration of the illness was at least three months.

The illness was febrile, accompanied by a raised blood sedimentation rate (Westergren) 20-60 mm. in one hour. Sometimes there was severe anæmia. The presence of keratoderma blenorrhagiæ was relatively frequent—17 cases during four years.

The illness did not appear to be influenced by treatment with either novarsenobenzol or streptomycin. After a prolonged, painful illness there was complete recovery.

(3) "Felty's Syndrome": A few febrile cases with diarrhœa, from whose stools one failed to isolate the organisms of bacillary dysentery, with swollen painful joints, were seen. The condition was uncommon.

(4) "Stevens-Johnson's Disease": Stevens-Johnson's disease was only seen during 1949. There was a considerable distance between cases but they appeared to be due to a specific infection. The cases were at Hanover (M., 22; M., 25), at Hamburg (F., 42), at Wuppertal (M., 9½).

The first two cases, one male, one female, were admitted to hospital with the tentative diagnosis of smallpox. They were very complete clinical pictures of the condition. The second two cases were less severe. The composite clinical picture was as follows:

Symptoms.—Photophobia, scalding on micturition, mouth painful on eating or drinking.

Signs.—(1) Fever. (2) Conjunctivitis—purulent. (3) Stomatitis—vesicular, later ulcerative. (4) Rash: papular: vesicular: pustular. Most marked below umbilicus. (5) Genital organs: *Male*: Œdema of foreskin: vesicles and ulcers under the prepuce. *Female*: Vulva œdematous: vesicles and ulcers between labia.

The acute, febrile phase of the illness lasted about three weeks.

Treatment.—Nursing with attention to conjunctivæ, mouth and to ensure that adequate nourishment was taken on account of the pain in swallowing. The genital organs were kept clean and calamine cream was applied.

The condition did not appear to be influenced by penicillin or sulphathiazole. They may have prevented secondary infection. The pigmentation in the scars, resulting from the rash, was slow to fade.

Alternative names for the condition are herpes iris conjunctivæ or erythema multiforme iris (Nomenclature of Disease, 1948).

(11) RICKETTSIAL DISEASES

"Where the soldiers were taken ill, where there was no hospital the malignant fever was unknown."

"Jail fever and hospital fever are the same illness."

The first of these quotations was very true of British Prisoners of War in German hands from 1941-45. By organizing Prisoner of War Working Camps and Hospitals in which they mixed prisoners from Eastern Europe, the Balkans and Western Europe, the British Dominions and Colonies, conditions, such as would have been found in the eighteenth century camps and hospitals, were again created.

By November 1941, epidemic rickettsiosis (louse borne) was established in the P.W. Camp, Stalag IX C., Bad Sulza and in the P.W. Hospitals at Wasungen and Stadtroda. The mortality of the infection was dependent upon the state of nutrition and age of the patient. In addition, there was a marked difference in susceptibility and fatality amongst the different nationalities. The Russians, Poles, Ukrainians, Yugoslavs and German guards and doctors readily caught the infection and died. The British, French and Belgian prisoners, doctors and medical orderlies, living under the same conditions, were less liable to develop the illness. Typhus vaccine (Cox) was not available to British Prisoners of War until February 1942.

Preparations were made to meet rickettsial infections during the years 1946-49. They were fortunately not required.

The single case of epidemic rickettsiosis (louse borne) seen was in July 1946. A Serjeant in the Intelligence Corps, whose work took him amongst refugees and displaced persons, developed typhus fever. The illness was not severe and the patient made a good recovery. His blood serum gave an agglutinating titre to *B. proteus* OX19 to 1/1,000.

Investigation of blood serum, in London, taken from, in 1947, a patient in Wuppertal, in 1948 a patient in Hamburg, thought to be ill with atypical pneumonia (virus) gave positive agglutinations against *R. burneti*. That is the non-epidemic rickettsial infection of "Q" fever was present.

The Medical Service of the United States Army also found the infection to be present at Munich, Bavaria (Schultze and Gauld, 1947). The *Journal of the American Medical Association* had two good papers on our present knowledge of this condition during 1947 (Editorial: Sadusk).

(12) DISEASES OF THE NERVOUS SYSTEM

The dominant disorder in the nervous system was paralysis of muscle groups. During 1946 and 1947, it was due mainly to diphtheria and infectious mononucleosis. In 1947 and 1948, paralysis of muscles was in the main due to acute poliomyelitis. In 1949 the dominant disorders were due to vascular lesions in the central nervous system. These were mainly due to rupture of congenital aneurysms of the basal arteries of the brain, presenting as subarachnoid hæmorrhage.

In diphtheria the sites of the lesions were faucial, nasal, cutaneous, penile

and vaginal (Bottomley and Christie, 1947). During the course of the illness in Germany the incidence of paralysis was at times as high as 25 per cent. This paralysis presented as palatal, ciliary, oculomotor (C.4, 6), facial, pharyngeal, laryngeal, lower limbs, upper limbs, quadriplegia, intercostal muscles and diaphragm.

In infective mononucleosis paralysis of individual cranial nerves or muscles also occurred; the most frequent being the facial (7C) and the long thoracic (nerve of Bell: C.5, 6, 7).

During 1946 there were 10 cases of acute poliomyelitis. Meningitis was due to the meningococcus in 14 cases, pneumococcus—2 cases, staphylococcus—2 cases, and tubercle bacillus—2 cases. The condition was called benign lymphocytic meningitis, in the absence of a positive Paul-Bunnell reaction, in 8 cases. A very typical case of Bornholm disease, seen in Berlin, gave a positive Paul-Bunnell reaction in his blood serum, during convalescence.

During 1947 the incidence of diphtheria diminished while that of acute poliomyelitis increased.

The symptoms that drew attention to the central nervous system were:

- (i) Meningeal irritation.
- (ii) Cranial nerve paralysis, single or multiple (C.3, 4, 6, 7, 9, 10, 11, 12).

Lumbar puncture was required for diagnosis:

(a) Glandular fever	...	...	...	...	...	6
(b) Weil's disease	...	...	...	...	...	1
(c) Benign lymphocytic meningitis	...	...	...	...	...	6
(d) Meningococcus	...	...	...	...	...	8
(e) Tubercle bacillus	...	...	...	...	...	1
(f) Mumps	...	...	...	...	...	2
(g) Subarachnoid hæmorrhage	...	...	...	...	...	9
(h) Poliomyelitis acute, with paralysis	...	...	...	...	...	12
Acute poliomyelitis, bulbar	...	...	...	...	...	3
Acute poliomyelitis, non-paralytic (not less than)	...	...	...	...	...	40
(i) Hysterical simulation of acute poliomyelitis, bulbar, in female nursing staff, including C.7 paralysis	...	...	...	...	...	2

Amongst middle-aged officers and members of the C.C.G. there were several vascular disasters in the brain, resulting in death or hemiplegia.

During 1948 there were 22 admissions for acute poliomyelitis, bulbar and acute poliomyelitis, with paralysis. Of these cases 2 died. 5 were from the Army, 4 from the R.A.F. and 13 were from the C.C.G. That is the people in closest association with the Germans had much the highest, actual and percentage incidence of infection.

In cases of meningitis the meningococcus was found in 13. One other rank claimed that it was the third time that he had had meningococcal meningitis. The Consulting Physician had seen the same patient, a year previously, ill with meningococcal meningitis, in another hospital.

An other rank, with pneumococcal meningitis, made a rapid and complete

recovery, on treatment with intrathecal and intramuscular penicillin. There were two cases of meningitis due to the streptococcus and one due to the tubercle bacillus.

Subarachnoid hæmorrhage had a steady incidence. One of the deaths due to this cause being in an other rank, aged 19 years.

During 1949 the neurological conditions encountered were varied and interesting. There were 8 cases of acute poliomyelitis. The incidence was again average, although it remained raised in the German civil population.

The meningococcus was found in 7 cases of meningitis. A baby, aged 18 months, developed meningitis with a seventh cranial nerve paralysis. The pneumococcus was found in the cerebrospinal fluid. Treatment with penicillin, intramuscular and intrathecal leads to complete recovery. There were 3 cases of tubercular meningitis and 1 of acute miliary tuberculosis with meningeal signs although tubercle bacilli were not demonstrated at post-mortem examination nor on microscopic examination of the meninges.

Three cases of males admitted in fits proved to be a case of status epilepticus, a case of polioencephalitis and a case of cysticercosis, cerebral.

Cerebral vascular lesions in young soldiers included 3 fatal cases of subarachnoid hæmorrhage. A soldier, aged 19, survived after a caratoid hemiplegia, left.

During the years under review there was a steady low incidence of 4-6 cases a year of both cerebral tumour and disseminated sclerosis. There were rather fewer cases of syringomyelia.

The following two cases of acute beri-beri, in stout drinkers, are described in detail.

M., aged 31, *drank 8-10 bottles of stout a day. His appetite was poor.* He became breathless and grossly œdematous. He was diagnosed as suffering from beri-beri. He was put to bed on a light diet and given vitamen B₁ by intramuscular injection. Diuresis was established within ten days, with rapid recovery.

M., aged 27, *drank 8-10 bottles of stout a day. He became breathless and œdematous.* He was suffering from beri-beri. With rest, diet and injections of vitamin B₁ he made a rapid recovery.

(13) THE SOCIAL DISEASES

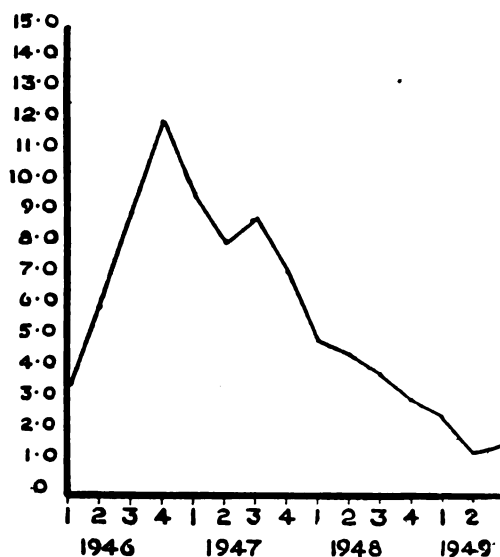
Scabies receives most attention.

By the social diseases are meant those whose incidence is increased by irregular sexual association and behaviour: that is in Europe, syphilis, gonorrhœa, acute ulcerative gingivitis, scabies and pediculosis (*Phthirius pubis*).

The Armies of occupation in Germany acquired access to women when fighting had ceased. As always happens during war the progressive destruction of home life, homes, regular habits of work and living had fostered the spread of venereal disease amongst women. Public health and police control of prostitutes had become less effective. Syphilis had spread beyond the sea ports, to a general distribution inland. The virulence of the illness was enhanced and it had again become a killing disease.

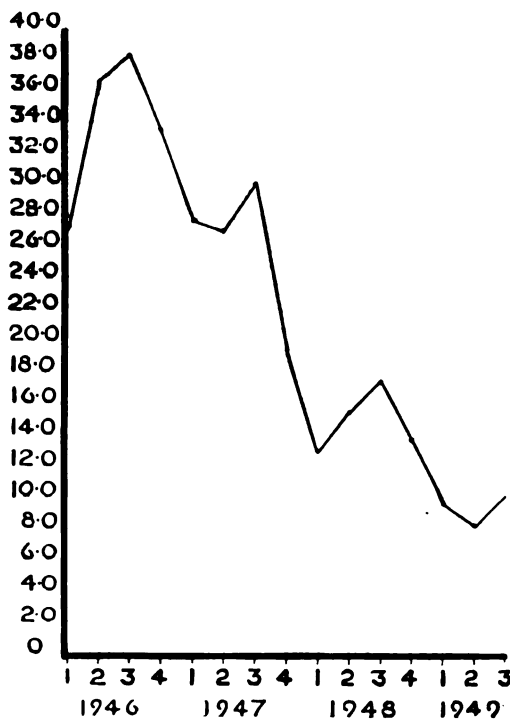
By 1946 the incidence of syphilis in other ranks was 3.53 per 1,000 per

GRAPH IV



INCIDENCE OF SYPHILIS—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

GRAPH V



INCIDENCE OF GONORRHOEA—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

quarter. By December 1946, it had risen to 12.08 per 1,000 per quarter (Graph 4).

The ratio incidence of syphilis to gonorrhœa was in January 1946 1:7.74; in December 1946 1:2.77.

This ratio incidence of syphilis to gonorrhœa, 1:3, continued until October 1948 when the Representatives of the German Physicians eventually agreed to use penicillin in the treatment of syphilis in women, both German and Displaced Persons, before giving arsenic and bismuth. This change of policy was reflected in the ratio incidence of syphilis and gonorrhœa in other ranks. In January 1949 the ratio incidence was 1:3.88; in August 1949 1:6.37.

In August 1949 the incidence of syphilis in other ranks was 1.59 per 1,000 per quarter (Graph 4).

During the years under review the incidence of gonorrhœa ran parallel to that of syphilis. By September 1946 it was 38.39 per 1,000 per quarter (Graph 5).

By August 1949 the incidence was 10.03 per 1,000 per quarter.

Acute ulcerative gingivitis followed a similar course. From an incidence of 38.75 in September 1946 (Graph 6), it had fallen in August 1949 to an incidence of 10.32 per 1,000 per quarter.

It is improbable that infection was due to inadequate washing of feeding utensils. Barracks, cook houses and dining halls were excellent, with an adequate supply of hot water. There were no localized outbreaks of acute ulcerative gingivitis in units. It is probable that the continental method of kissing was the usual method of infection.

That scabies (*Sarcoptes scabiei*) may be of venereal origin is admitted in "Notes on the Prevention and Treatment of Scabies" (War Office 1941). In the very abnormal social conditions existing in B.A.O.R. in 1946, it usually was venereal in origin (Graph 7).

The incidence in other ranks, per 1,000 per quarter, rose to a peak of 60.04 in late 1946. This figure had fallen to 8.37 in the first quarter of 1949.

The graph (Graph 8) of pediculosis includes *Pediculus humanus corporis*, *Pediculus humanus capitis* and *Phthirus pubis*. It is consequently not limited to the crab louse (*Phthirus pubis*) whose economy is most dependent upon its host's sexual life.

The graph is consequently not as clear cut as the others in demonstrating the course of the social diseases.

The peak incidence of 7.95 per 1,000 per quarter at the beginning of 1947 is, however, parallel with the other graph.

(14) DRUGS

"Observations on the Itch: Sulphur is specific in this distemper."

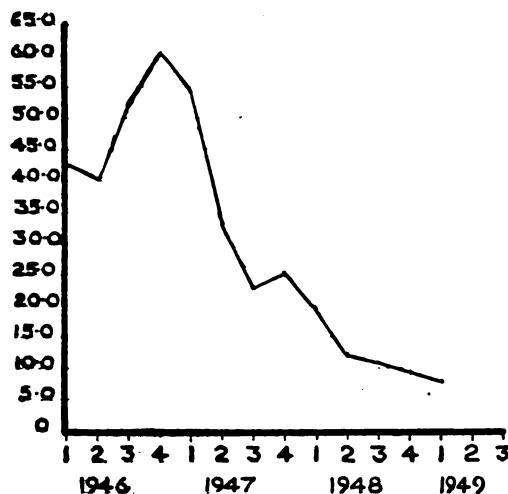
We are still discussing specific remedies, and still seek a universally applicable therapeutic agent. It was a period of assessing, under peace conditions, the rapid developments in physics and chemistry during the War, 1939-45.

GRAPH VI



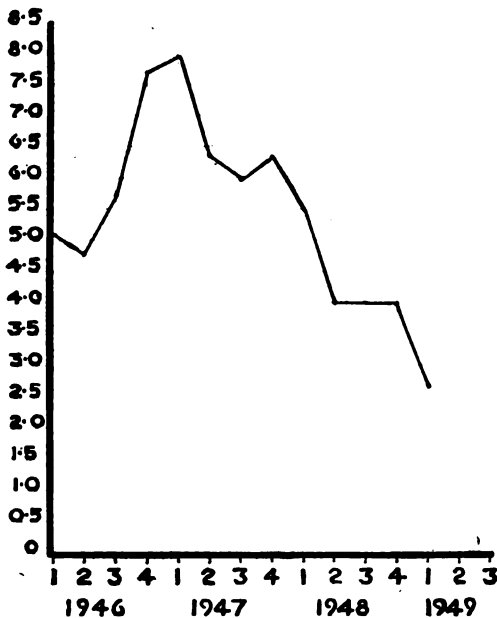
INCIDENCE OF ACUTE ULCERATIVE GINGIVITIS—BRITISH ARMY, ALL RANKS
RATE PER 1,000 (QUARTERLY).

GRAPH VII



INCIDENCE OF SCABIES—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

GRAPH VIII



INCIDENCE OF PEDICULOSIS—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

Antibiotics.—The sulphonamides had stood the test of war well and were established. Their limitations were understood and a search was proceeding for less toxic preparations. This carried us from sulphathiazole to sulphadiazine. Sulphaguanidine was used in bacillary dysentery and succinyl sulphathiazole (Sulphasuxidine) in preparing the bowel before major operations on the intestine. Sulphores were not used. Penicillin was very valuable in treating syphilis and gonorrhœa and reducing the time a patient was retained in hospital. It proved less adequate in the treatment of both conditions than had been hoped. This was in part due to the variation of the commercial penicillin supplied. It was mainly "G." This is most effective against syphilis. "X" is, however, most effective against the gonococcus.

Penicillin "G" often failed to control staphylococcal fever and its results in meningococcal infections tended to be poor. For this infection sulphathiazole or sulphadiazine were much more reliable. Streptomycin promised so much in the treatment of tuberculosis of the lungs and meninges—it attained so little.

Chloramphenicol and aureomycin were not available for trial.

Insecticides.—In the use of insecticides several new drugs were discovered and their proved value has been maintained. D.D.T. was very useful against lice, houseflies and mosquitoes.

Chlorination of Drinking Water Supplies.—As in the War 1914–18 adequate

filtration, sedimentation and chlorination of water rendered it free from the organisms of the typhoid, dysentery, cholera group of organisms and made it safe to drink.

After treatment the presence or absence of *Bacillus coli*, on culture, is the index of the safety of the water as a supply of drinking water.

This test does not appear to exclude the presence of the viruses that cause infective hepatitis, acute poliomyelitis and infectious mononucleosis. The incidence of these conditions has remained above average during the years under review.

(To be continued)

SCHIZOPHRENIC REACTION ASSOCIATED WITH THE KLEINE-LEVIN SYNDROME

BY

Lieut.-Colonel J. T. ROBINSON, O.B.E., M.A., M.D., D.P.M., D.T.M.&H.
Adviser in Psychiatry Southern Command

AND

Major J. McQUILLAN, M.B., D.P.H.
Officer in Charge Psychiatry Division, Royal Victoria Hospital, Netley

In a series of cases reported by Kleine (1925) suffering from periodic somnolence there were two in whom bouts of hypersomnia were associated with excessive appetite. Levin (1936) having collected 7 cases from the literature and from his own observations published them as a new syndrome which he called "Periodic Somnolence and Morbid Hunger." This syndrome was characterized by excessive sleepiness and hunger usually lasting several days or weeks. These attacks occurred quite suddenly and in general with no premonitory signs or symptoms. A minority of these cases occurred soon after an acute febrile illness such as "grippe," tonsillitis and influenza. Further cases were reported by Critchley and Hoffman (1942), Ronald (1946) and Grewel (1947).

All cases reported were males and in each the onset was first noticed in the second decade. The hypersomnia during the day was the main reason why patients were brought to the doctor or reported for examination.

During the attacks the patient sleeps excessively during the day and night, waking only to eat and to go to the toilet. He can always be roused. When roused he is usually irritable and wants to be left alone so that he can go to sleep. He is abnormally hungry and eats excessively.

The attacks are separated by intervals of normal health. As the patient gets older the frequency of the attacks becomes less and in time they no longer occur.

All authors are agreed that the sleep itself beyond being polyphasic differs in no way from normal sleep.

Critchley and Hoffman (1942) were the first to report the result of electroencephalography in patients with this syndrome. Their investigations revealed no abnormality while resting, but vigorous overbreathing evoked a large intermittent delta discharge involving both frontal lobes but this was more regular on the left. They point out that a finding of this sort indicates the existence of a cerebral dysrhythmia and nothing more. Ronald (1946) carried out similar investigations but electro-encephalographic tracings revealed no abnormality at rest or overbreathing.

Some patients exhibited marked motor unrest and mental symptoms. The latter included excitement, irritability, difficulty in thinking, forgetfulness, incoherent speech and hallucinations. These symptoms occurred only during the attacks of somnolence and excessive hunger. In the intervals there were no symptoms and no abnormality could be detected clinically in the patient. In the two cases described by Critchley and Hoffman (1942) the main presenting mental syndrome during the attack was confusion. The first patient complained that he could not think clearly and exhibited some slowness in cerebration. He was, however, well orientated as to time and place. It was observed that neither patient exhibited delusions or hallucinations. Behaviour during and after the attack was normal and neither patient showed restlessness or irritability.

Similar minor mental symptoms were observed in the two cases reported by Ronald (1946) and in a further case reported by Grewel (1947). In both the former cases the attacks were followed by a few days in which the patient was depressed. Evidence from the literature indicates that all patients have some degree of amnesia for events occurring during the attacks.

This case is reported with special reference to the mental symptoms and signs. It is of further interest in that the history revealed some apparent disturbance of water metabolism. It is also the first recorded case amongst Army personnel.

CASE

The patient, an officer cadet aged 19, was admitted to the Royal Victoria Hospital, Netley, on August 12, 1950, on the recommendation of the Area Psychiatrist, Aldershot, to whom he had reported the previous day complaining of depression, excessive tiredness and feeling shaky on parade.

Past medical history revealed nothing of significance.

The family history revealed no nervous or mental illness.

On admission he complained of "blackouts" and explained the latter as a feeling of drowsiness and inability to take any interest in his duties. He felt "out of touch" with his surroundings and though he knew he was behaving in a peculiar way could not control his actions.

He was a husky youth of athletic appearance in excellent physical condition. He was untidy in his dress and his hair was unkempt. His manner was "off-hand," casual and disinterested. His eyes wandered round the room and he would suddenly look over his shoulder. Asked to explain what he was looking for, a fatuous smile spread over his face and he replied "I thought I heard someone." Attempts to elucidate further information met with stubborn negativism. His fatuous smile was remarked by all who saw him but questioned about it he remained mute.

Answers to questions were vague and it was almost impossible to maintain his attention and concentration. Many answers to questions were "I don't know" while to others he exhibited some thought blocking. Asked where he had come from he smiled and replied "—well—" and was unable to go on. He was clearly confused and it was almost impossible to maintain contact with him. His affective responses were inappropriate and shallow; his mood was one of indifference and insolent hostility. He was well orientated as to time and place and obviously of good intelligence though his cerebration was slow. Delusions were not evident but patient appeared to be hallucinated.

His behaviour in the ward was eccentric and bizarre. He exposed himself in the ward and masturbated lying naked on the bed, grinning broadly. He made lewd remarks to

the sisters and on one occasion urinated in the garden in the presence of a sister. Reproofs were dismissed in an airy and irresponsible way, evoking neither shame nor remorse but resentment and hostility from the patient.

During the day he was drowsy and slept most of the time. This drowsiness appeared to get worse about midday. This sleep resembled ordinary, normal sleep. There was no "sleep paralysis" either at night or waking. Nocturnal sleep was deep and normal. There was nothing to suggest cataplexy occurring either spontaneously or as a result of sudden emotion or noise. He could be roused easily but at such times became irritable and wanted to be left alone to go on sleeping. His appetite was excessive and he never appeared satisfied.

During the attack he passed excessively large quantities of urine though his intake of fluids was no more than normal.

His behaviour and acute mental disturbance unfortunately directed attention away from the underlying syndrome so that the opportunity for carrying out biochemical tests during the attack was missed.

Four days after admission he was completely normal and his behaviour was in marked contrast to that during his period of hypersomnia. He was respectful, well mannered and smart in appearance. He had a complete amnesia for the events of the previous week and was uncertain of the day he was admitted to hospital. On being informed of his eccentric behaviour he was obviously embarrassed and stated that he knew he was behaving badly but was incapable of controlling himself.

Physical Examination.—His general appearance was that of a healthy athletic youth. No abnormal signs were found in the heart, lungs, genito-urinary system, abdomen or central nervous system. Blood pressure was 120/80.

Past History of Illness.—This gave a clue to the underlying syndrome but was only obtained from relatives after the patient had recovered from his attack. His first attack occurred at Christmas 1948 after a hard day out with the beagles. He became strange and distant, avoiding company. He was quite unaware of what his relatives and friends said to him. On two successive nights he urinated into a pair of gum-boots instead of the urinal, and was quite unashamed and apathetic when his family commented thereon. He was very drowsy and irritable when roused. He ate excessively and sold a bicycle for 25s., all of which he spent on preserved fruits and ate the lot at one meal. This attack lasted for three days.

In December 1949 he had a second attack. On three successive mornings he ate all the rations of another boy at his boarding school. When asked why he did not eat his own he replied that they had been "fumigated." No reasoning could dispel this belief. He was drowsy and irritable. Ordered to stay in his room he got out and created a disturbance in the public hall laughing and shouting. His behaviour was the cause of considerable comment by his school fellows, who regarded him as "queer." His appetite could not be satisfied. This attack lasted about four days after which he returned to normal.

He had a normal happy early childhood and adolescence but alleged that he was inclined to worry over trivial matters. Educated at a preparatory and later a public school he mixed well and played all games well. He represented his school at football and athletics. At the age of 15 years he matriculated and began to study for medicine but following his "breakdown" in December 1949 was advised to give up medicine. He then joined the Army in January 1950 and successfully passed a War Office Selection Board. He had only been training as an officer cadet for about two weeks prior to seeing the Area Psychiatrist at Aldershot.

Special Examination.—Urine—acid specific gravity 1020. No albumen, and no sugar. Blood: Hæmoglobin 78 per cent (10·799 per cent); total red blood cell count 4,440,000 c.mm.; white blood cell count 6,480; colour-index 0·87; differential white cell count, polymorphs 51 per cent, lymphocytes 40 per cent, monocytes 6 per cent, eosinophils 1 per cent, basophils 2 per cent. Blood Wassermann reaction negative. The blood sugar curve was fasting: 115 mg. per 100 c.c.; half an hour after ingestion of 50 grammes,

dextrose 135 mg.; one hour 150 mg., one and a half hours 130 mg., two hours 145 mg., two and a half hours 150 mg.

An electro-encephalogram carried out on September 27 revealed the following: The amplitude of the E.E.G. was low and the alpha activity somewhat irregular in form. No paroxysmal or other discrete forms of activity were seen. Hyperventilation caused relatively little change in the cortical pattern.

Radiographs of the skull showed no abnormality, the pituitary fossa being regular in outline and within normal limits of size and shape. The case was referred to Sir Hugh Cairns who, in a personal communication to one of us (J. McQ.), reported on October 14, 1950, that he was of the opinion that this was a case of intermittent hypothalamic disorder of which the cause is at present unknown.

DISCUSSION

The syndrome described by Kleine and Levin is now generally accepted as a definite entity.

Present knowledge, however, gives no information regarding the pathological process underlying the condition.

Levin postulated that the syndrome could be explained by a lesion of the frontal lobe. After special consideration of hypoglycæmia in relation to the differential diagnosis Critchley and Hoffman discount this possibility. A cerebral lesion, if it caused hypoglycæmia, would most certainly produce intolerance to insulin, which was not present in their cases. They quote the work of Cleveland and Davis (1936) who found insulin intolerance in 12 out of 14 cats with artificially produced hypothalamic lesions. They dismiss hyperinsulinism due to pancreatic overactivity in the absence of (1) post-absorptive blood sugar of less than 50 mg. per 100 c.c., (2) symptomatic attacks of hypoglycæmia occurring only when the patient is fasting and (3) the relief of such attacks by the administration of sugar. They suggest a patho-physiological process affecting the hypothalamus is responsible for the condition but could form no definite conclusion regarding the morbid anatomy and physiology of the syndrome. This is also the opinion of Sir Hugh Cairns who kindly examined this case. The history of excessive urinary output during the attacks in the present case, in the absence of any organic disorder of the urinary tract in this case, supports this view.

The hypothalamus lies ventral to the thalamus and forms the floor and part of the lateral wall of the third ventricle. Remole has shown that sleep could be produced by puncture of the third ventricle and by the injection of calcium salts. It is also well established that one of the functions of the hypothalamus is the control of water metabolism and that destruction of the supra-optic nuclei can precipitate severe diabetes insipidus (Fulton, 1947).

This syndrome is quite unlike narcolepsy in which the attacks of insomnia last only a few minutes, occur more frequently, and are paroxysmal rather than periodic. Excessive hunger does not occur in narcolepsy which is usually accompanied by catalepsy and disordered sleep. Hunger sometimes precedes and at other times occurs immediately after, but never during, the narcoleptic attack.

Mental symptoms appear to have been so insignificant in the cases reported

in the literature as to cause but little comment. There is available no evidence to indicate the type of mental reactions which have been observed. It is impossible to conclude whether such fall into the psychoneurotic or psychotic groups, or whether such mental reactions can be correlated with the syndrome described. It is not possible to determine whether all mental reactions were similar in type.

Schizophrenic reactions occur in many pathological conditions such as cerebrovascular lesions, brain tumour and abscesses, hypertension, kidney diseases, endocrine and metabolic disorders, and toxic or infective conditions. The pre-psychotic personality determines the particular reaction, but there is little evidence to indicate the pre-morbid personalities of those cases within the Kleine-Levin syndrome so far recorded. The pre-morbid personality of this patient indicates that he was socially well adapted and enjoyed company and entered fully into school life with his comrades.

Such reactions differ from schizophrenia *per se* in that the reaction is secondary to the organic, metabolic or infective process, consciousness is usually clouded and the symptoms clear up with the recovery of the patient from the initial complaint.

No organic lesion was discovered in the present case and yet the sudden onset, the presenting symptoms and rapid recovery suggested a fluctuating pathological lesion. A study of the available literature provides no proof of any pathological lesion in true schizophrenia and ætiology of which still remains obscure.

While the numbers of the reported cases of the Kleine-Levin syndrome have been few much factual evidence has been acquired and speculations disproved by the observations and investigations of Critchley and Hoffman.

The report of this case does little to elicit further the obscurity of the ætiology but does direct attention to the mental disturbances. Biochemical studies together with detailed investigations are necessary before the importance of this relationship can be assessed.

SUMMARY

(1) A further case of the Kleine-Levin syndrome is here recorded, bringing the total number of recorded cases to 15.

(2) The mental symptoms are those of a schizophrenic reaction in a patient whose pre-morbid personality appears to have been socially well adjusted.

(3) The syndrome was associated with disturbance of water metabolism.

(4) The pathology is still obscure but a hypothalamic dysfunction is suggested by Sir Hugh Cairns.

REFERENCES

- CLEVELAND, D., and DAVIS, L. (1936) *Brain*, **59**, 459.
CRITCHLEY, M., and HOFFMAN, H. L. (1942) *Brit. M.J.*, **1**, 137.
FULTON, J. F. (1947) *Howell's Textbook of Physiology*.
GREWEL, F. (1947) *Nederl. Tijdschr. v. Geneesk.*, **91**, 2894.
KLEINE, W. (1925) *Mschr. Psychiat. Neurol.*, **57**, 285.
LEVIN, M. (1936) *Brain*, **59**, 494.
— (1938) *J. Nerv. and Ment. Dis.*, **88**, 414.
RONALD, J. (1946) *Brit. M.J.*, **2**, 326.

ASSESSMENT OF PHYSICAL FITNESS FOR SERVICE IN THE BRITISH ARMY¹

BY

Colonel A. E. CAMPBELL²

Royal Army Medical Corps

No discussion of this subject is advisable without some review of the past. It is the large scale (now total) war which produces the time-demand-supply factors which have brought out and may continue to bring out the defects in organization and administration of medical assessment.

BEFORE WORLD WAR I

Prior to World War I, recruiting was based on the excess of supply over demand. Between 1903 and 1911 rejections were 314·01 per 1,000 recruits examined and recruiting staff were experienced, working on a general service standard which in the majority of cases meant the exclusion of active disease. There was a follow-up of recruits of questionable quality. Results were seen in the high shooting and marching qualities of the British Expeditionary Force of 1914.

WORLD WAR I

The *first phase* of recruiting was the effort to deal with 500,000 volunteers with the peacetime organization. Results were bad and subsequent discharges large although notes and instructions for medical examiners were issued. It is doubtful if these were even read and in any event an attempt was made to deal with too many men too quickly.

The *second phase* was the introduction of categories designated by letters and, by the end of 1915, medical boards consisting of a president and three or four members had replaced examination by individual civil medical practitioners. In spite of efforts to improve, the problem of the uniform standard remained great and there was much public criticism. In 1916 the system of lettered categories was expanded and subcategories provided for garrison and labour duties. Ability to march or walk 5 miles was used as a standard.

The *third phase* was brought about by (a) the wave of criticism of the manner, method, and standard of medical examination and classification which arose in the association with the increasingly difficult man-power situation, (b)

¹Reprinted by kind permission of the Editor from the *U.S. Armed Forces Medical Journal*.

²Professor of Army Health at the Royal Army Medical College, London, England.

a Military Service (Review of Exceptions) Act of Parliament, and (c) the critical state of the war. Parliamentary debate and examination resulted in the reconstruction of the Ministry of National Service and medical examination and re-examination passed to civil control by boards organized on a regional basis. On the necessity for a change the official medical historian of the time wrote: "... most of the trouble arose from the system of requisition and calling up of recruits and the fraudulent practices to escape military service. . . . Whatever else may have aroused popular feeling against the manner in which the Military Service Acts were being applied by the recruiting authorities and medical boards, the methods of categorizing and the impossibility of maintaining a definite standard for each category were probably the chief cause of discontent." Official investigation showed that the margin of error in classification was not more than 0.5 per cent of the total number of recruits classified and the impression was that the defects of the system and methods of medical assessment were accentuated if not exaggerated by the extreme pressure of circumstances and a vociferous minority of difficult cases.

As a *final* development recruits were placed in three grades. In Grade I were the men who had attained a normal standard of health and strength, were capable of enduring exertion suitable to their age, and were free from serious organic disease or deformity. Absence of disease and ability to withstand strain became standards of assessment. In Grade II were men able to stand a fair amount of physical strain and likely to improve under training. In Grade III were men unlikely to be fit, for combatant service and suffering from defects or disabilities, the older men, and sedentary workers. History records that labourers might be placed in this group.

Certain disease and conditions received historical mention having presumably been of sufficient importance or difficulty to the recruiting processes. When individual examiners were at work, hernia, varicose veins, defective vision, dental conditions, middle-ear disease, "debility" and old age were mentioned as causes of rejection, revealing the fallibility of the initial examination. Absence of reference to "nervous disorders" is interesting. Later in the war a special review board rejected men already accepted, principally because of nervous disorders, tuberculosis of the lungs, and heart disease. A final review of experience referred to the importance of dentistry, the significance of cardiac symptoms, and the introduction of lower visual standards.

INTER-WAR PERIOD

Recruiting for the Regular Army continued on conventional lines, the rejection rate being even higher than the pre-war rate. The general service standard of fitness continued but a new mechanized class was separated from the "Horse and Foot" class and allowances were made for it. Considerable work was done in the enlistment of sub-standard recruits as special cases and their improvement by graduated training. This work in the assessment and treatment of remediable defects was the forerunner of that of the Physical

Development Centres of World War I which did so much to increase physical efficiency in the wartime Army.

WORLD WAR II

The Ministry of Labour and the National Service Medical Boards were at work assessing men in one of four grades approximating those of World War I. Normally men initially in Grade III were not inducted in the Army. The term constitution appeared as one of four characteristics for assessment, the others being ability to march, visual acuity, and keenness of hearing. There was no attempt at close definition of what was meant by "constitution," but it was described as freedom from organic disease, soundness of heart and lungs, and adequate mental and muscular development combining to produce in a soldier those qualities which would enable him to withstand severe strain. Ability to march was to be assessed on defects of locomotion not of structure.

The lettered categories were allotted by the Army authorities and corresponded generally with the original grades, i.e. A=Grade I=general service; B=Grade II=restricted service; C=Grade III=service at home. It was necessary to express the other characteristics and this was done by adding figures to these letters to express locomotor, visual, or hearing defects. Increasing man-power stringency, the employment of large numbers of more fit men in technical duties for which they were trained necessitated closer definition of defects influencing employment of the less fit. Men of 41 years and over had X added to their category between letter and number and limitation to temperature climates caused the addition of N.T. (non-tropical) after the figure of the medical category.

New Developments.—The time of maximum criticism may not be the period of maximum inefficiency. In World War I changes in the process of assessment of fitness occurred at a time when man-power and general military conditions were critical. In World War II pressure of criticism arose from two new quarters both concerned with the mental side of human activity.

In 1942 a personnel selection procedure was introduced. Any deficiency in physical assessment was likely to be revealed by this procedure and particularly so in the stages of its development and the application of "press button" recording and sorting. For the first time, however, a full and comprehensive study of the soldier's work was undertaken and assessment of physical fitness consequently began to take proper place as a stage in the employment of man-power, and the make-up of an Army. Pressure of criticism also came from the psychiatrists. The existing system of categorization did not in itself indicate a person's mental or emotional make-up and the war was not long in progress before the wastage from assessed psychiatric disabilities suggested the need for more accurate definition of these factors.

The British War Office was acquainted with work being done in Canada which resulted in the introduction of the PULHEMS system in 1943. Both medical and personnel aspects had been closely studied and selected groups

of Army intake were examined according to the system. All aspects of the problem and the solution suggested by the PULHEMS system were considered. The British Army authorities had earlier decided that it was "both undesirable and totally impracticable to introduce a new system once war had started."¹ Not even such a system as PULHEMS could alter this decision.

POST-ARMISTICE DEVELOPMENTS

In 1946 the devising of a new system of categorization was taken up by an Inter-Service Committee and the present PULHEMS system was officially adopted by the Army on April 1, 1948. The new system has also been accepted by the Royal Navy, Royal Air Force, and the Ministry of Labour and National Service. The title PULHEMS pays tribute to its origin in the Canadian Army PULHEMS system. The purpose of the system is to assist in assigning men to the type of employment for which they are most suited. Early emphasis was placed on the necessity for a clear picture of a man's physique as it affected his functional ability as contrasted with the former methods of assessment based on anatomic abnormalities.

The qualities contributing to the final assessment were essentially the same as in PULHEMS. E. E. representing the need for Royal Navy and Royal Air Force for statement for many of their tradesmen of the precise degree of visual acuity in each eye.

The *degrees of fitness* were in general in accordance with the following table which also shows their relation to climatic restriction.

Degree	Functional efficiency	Climatic restrictions
1	Above average	None
2	Average	
3	Moderate functional defect	
4	As P 1	Service in temperate climate only
5	As P 2	
6	As P 3	
7	Marked functional defect	Service in United Kingdom only
8	Unfit for military service on existing standards.	

This table is an oversimplification and it is necessary to study each "quality" in more detail.

- P** (Physical capacity).—Factors to be considered are age, build, strength, stamina and resistance to exposure. All degrees from 1 to 8 can be assessed.
- U** (Upper limbs).—Strength, range of movement, and general efficiency of upper arms, shoulder girdle, and neck are to be considered. In the case of assessment of both upper and lower limb functions, any pathologic condition will have a general constitutional effect and there is no need for specific climatic limitation and, therefore, for the use of degrees 4, 5, 6 under qualities U and L. The same considerations apply to H.

¹Fletcher, R. T.: PULHEMS a new system of medical classification. *Brit. M.J.*, 1, 83-88, Jan. 15, 1949.

- L** (Lower limbs).—The factors to be considered in assessment of degrees 1, 2, 3, 7, and 8 are strength, range of movement, and efficiency of feet, legs, pelvic girdle, lower back.
- H** (Hearing).—A simple assessment of auditory acuity is supplemented by a guide to the effect of ear conditions on the quality **P**.
- EE** (Eyesight).—Uncorrected vision is classified in all degrees 1 to 8 together with corrected vision in each eye separately.
- M** (Mental capacity).—This quality is best assessed by the practical method of finding whether the man is able to understand his duties as a soldier. As such a method of assessment involving trial and error would be wasteful, the soldier's "M" assessment must be judged by consideration of: (a) his selection test results, (b) his record of school and of occupational progress, and (c) the impression he gives on personal interview.
- S** (Emotional stability).—The introduction of this quality into assessment practice and even more, its expression in degree was regarded doubtfully by many interested parties. This doubt found expression in the short-lived restriction on the recording of the **S** degree to medical documents.

On the assessments of both **M** and **S** qualities there is special limitation not found with other qualities. Degree 1 implies functional efficiency above average which it was considered extremely difficult to assess. This degree, therefore, is not used and 2 under **M** and **S** indicates normal or above. In **M** assessment there is no climatic limitation and degrees 4, 5, and 6 are not used therefore. The **S** quality has an effect on climatic restriction but as limitation to a temperature climate on this account is unlikely to be compatible with a combatant role, degrees 4 and 5 are not used. Applicable degrees of qualities are shown in Table I.

TABLE I.—APPLICABLE DEGREES OF QUALITIES

P	U	L	H	E	E	M	S
Degrees							
1	1	1	1	1	1		
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4				4	4		
5				5	5		
6				6	6		6
7	7	7	7	7	7	7	7
*8	*8	*8	*8	*8	*8	*8	*8

*Unfit.

Functional Interpretation of Degrees of Each Quality.—Up to this point the discussion of the new system has tended to be at committee level far removed from the medical officer and his "case." To aid him a tabular guide shows 31 combinations of quality and degree. Little need be said about degrees 4, 5, 6 (climatic restrictions). **U** is related to weapon handling and **L**

to marching (5 miles being the standard at different speeds) and standing (for two hours). Little is said on H and for E E standard which can be memorized are given for all degrees. Intelligence, once assessed, remains a constant factor and the separation is into those fit for full combat duty and specialist training, those fit for unskilled labour, and those of low mental capacity and unfit to bear arms.

The "S" quality calls for assessment of those (a) fit for full combatant duty anywhere, (b) with a history of emotional instability but fit for a non-fighting role anywhere, (c) with a history of instability but fit for a non-fighting role in a temperate climate, and (d) fit to perform Army duties adequately under living conditions favourable to the soldier in the United Kingdom. Much of the foregoing leads to the assessment of P. Fitness *after training* to withstand the full strain and fatigue and exposure of combat duty for long or short periods produces an assessment of P1 or P2. For P3 the standard is fitness for ordinary work and, therefore, for restricted service only.

The Influence of Special Conditions on Assessment.—The previous section deals with concepts and it may well be asked if more detailed guidance related to specific disease or conditions is not essential. Official instruction warns the medical officer that he must use his own judgment and consider each case on its merits. Lengthy observation (and therefore unemployment) is deprecated in minor disabilities and the prospect of useful employment within temperate climate or United Kingdom restrictions stressed. More detailed instructions linking disease histories to P are given for cardiovascular conditions, pleurisy with effusion, toxic goitre, cervical adenitis, renal calculus, diabetes mellitus, blackwater fever, sprue, heat hyperpyrexia, gastroduodenal disabilities, amputations, skin, ear, nose, throat, and eye diseases, and other morbid conditions, and finally problems of women are included in a section on gynæcologic disorders.

Documentation.—A typical record of assessment is shown in Table II. The

TABLE II

	P	U	L	H	E	E	M	S
1919*	3	2	7	2	1	1	2	2
Ht.72	P							
C.P.† 2	U							
Wt. 193	L Severe pes cavus with hallux rigidis, medical board 4-1-44							
		S						

*Year of birth.

†Colour perception.

recorded degrees of the various qualities, 3 2 7 2 1 1 2 2 in the figure are known as the PULHEEMS code number or profile.

Correlation of PULHEEMS and Employment.— The standards on which a PULHEEMS assessment are based are constant throughout all corps of the Army except the women's corps which have a lower standard in P, U, and L. Because the functions of the corps vary, it would be uneconomical in man-power to require the same minimal PULHEEMS assessment for combatant, lines of communication, and base duties in all corps. Minimal requirements by corps and for employment within corps are tabulated in the official instructions. The application of the system is simplified by grouping the PULHEEMS assessment acceptable to each corps for each area of operations and expressing the result in a two-letter code known as a PULHEEMS Employment Standard (PES).

This code is interpreted as follows:

FE (forward everywhere): Employable at full combat duties in any part of the world.

FT (forward temperate): Employable on combat duties in any area in temperate climates only.

LE (lines of communication everywhere): Normally employed in lines of communication or base areas in any part of the world but may be employed in a forward area in any role which is not primarily a fighting one.

LT (lines of communication temperate); Normally employed in the lines of communication or base areas in temperate climates only; but may be employed in a forward area in any role which is not primarily a fighting one.

BE (base everywhere): Employable in the base area only in any part of the world.

BT (base temperate): Employable in the base area only in temperate climates.

HO (home only): Employable in the United Kingdom only.

Administrative Instructions.—Earlier reference has been made to the place of PULHEEMS in the allocation of man-power. A special pamphlet is prepared for commanding officers who are informed that all officers should take an intelligent interest in the basic principles of the system which in its increased accuracy and scope will ensure fuller use of everyone's potentialities.

DISCUSSION

It is perhaps unfortunate that the medical assessment of World War I should leave behind it a term of opprobrium, "C.3." As for the individual so also for the system, failure is remembered and yet World War II opened without any revolutionary advance in applying clinical appreciation and mensuration. There was greater definition and many would say that functional considerations were not neglected in these definitions. Initial examination by a board was maintained and there does not appear to have been the same difficulty as in World War I about the uniform standard.

As was inevitable, there was much reassessment in the service, and some criticism of the initial assessment by civilian boards but the small minority created and attracted much attention. Of one intake of over 5,000, 92 per cent were in category "A" and over 6 per cent in B.1. The efforts to use men of low grade of category or physique or stamina bulked large in proportion to numbers but pressure of man-power shortage was extreme. The demand for tradesmen and technicians increased the shortage of men for training, say, as infantry, in which good physique was essential.

The increased literature of medical assessment is interesting. The pamphlet of medical categories in World War II ran to 18 pages, Canadian PULHEMS to 128 plus 43 in tables of classification of Army duties and the PULHEMS Medical and Administrative instructions ran to 78. It is doubtful if the necessity for learning any assessment system by reading and application is thoroughly appreciated. There is also need for knowledge of, and balanced sympathy with, the soldier in his work. These are sometimes difficult for the young medical officer to acquire.

It may also be asked if ordinary medical knowledge is sufficient to assess ability to withstand severe and prolonged strain of exposure, stamina, and liability to break down. The obvious negative answer reinforces the need for instruction of examining medical officers—a problem for the administrator and often an unwelcome imposition on the medical officer of a new attitude of mind. Reverting to the medical board and the work of a number of doctors whether they be military or civilian, the problem of the uniform standard is not necessarily solved by a new method of assessment unless it carries the calculation of ability much farther than seems possible at present. A review of PULHEMS shows how often attention is turned back to the quality P so much of which was sought in the assessment of "ability to withstand" in World War I.

The need for inclusion of something of the nature of M and S qualities of PULHEMS was undoubted but having qualified to be "qualities" what do we read about them? "With regard to M and S, degree 1 implies functional efficiency 'above average' which it is considered extremely difficult to assess; thus degree 2 under these qualities indicates normal or better."¹ The medical examiner in search of assistance may well ask if assessment is made any easier by making 1 into 2. There is some encouragement for the medical examiner handling difficult human material in the work which continues at the user end of the man-power problem into ability required in various employments. The association of workers on the various stages of allocation of man-power cannot but tend to mutual appreciation of margins of error and their reduction.

SUMMARY

The history of the assessment of physical fitness for service in the British Army reveals increasingly analysis with some recurrence of problems and terms. If medical examiners are not born they must be made—to get to

know the practice of any system. Recent advances came from the Canadian PULHEMS system and, in their British form of PULHEEMS, emphasize functional capacity, peg mental factors and are linked to employment standards. There seems to be greater hope of proving norms and estimating capabilities if the critical attitude to previous systems continues along with the co-operation which produced PULHEEMS. The birth of a system essentially the same for Royal Navy, Army, and Air Force is in itself a notable event which may be of historic importance.



At Random



Helicopter evacuations of casualties have saved hundreds of lives in the Korean war. The ever-handy "egg-beater" is the safe answer to all evacuation problems. Here an American 'copter sets down in a frozen paddy-field to collect Australian stretcher-cases handed in by mates of Third Battalion, R.A.R.

MOUNTAIN WARFARE

THE "Medical" problems of Mountain Warfare have probably varied little over many decades and even centuries. As Time, the scientific methods of control of disease and modern methods of transportation have progressed, so the actual difficulties have perhaps diminished. But with our modern ideas of the standards of medical and surgical treatment and the desire for the maximum elimination of shock and its sequelæ the medical difficulties of mountain warfare have probably not appreciably decreased.

From the days of Alexander and Hannibal, Wellington and The Corsican, Cumberland and Robert The Bruce; from the actions of Spion Kop, Dargai and Monte Bello the main problem for the Regimental Medical Officer or Field Ambulance Commander, or their equivalents, of the evacuation of battle casualties and sick from mountain pickets and down precipitous slopes has probably remained and still remains much the same. In the end the main problem and solution is the hand carriage of casualties by the personal effort of the medical unit or Regimental Stretcher Bearer.

In several recent articles in the Journal and in some illustrations in this

number the medical problems of mountain or jungle warfare and their solution have received attention. We believe that ~~even~~ now in the fighting in Korea and in the magnificent epic of the 29th Brigade some of the main difficulties of Medical Officers and Men of the Medical Services are those of mountain warfare and the evacuation of casualties from mountain positions. We would certainly all be most grateful for some accounts of these problems and their solution when those who are partaking in this present war can spare the time.

In the last two World Wars and the more restricted wars between, considerable attention was given to this problem of casualty evacuation from mountain tops. Hand carriage of course remained the main method. But mules and hill ponies with "travois" or "kajawahs" in various forms and under various names and the Hamilton saddle were also extensively used, for example in the campaigns in Serbia, Greece and Italy in World War I and in the Eritrean campaign at Karen and subsequent battles and in the Burma campaigns of World War II. But even with the use of mules and the various carrying appliances used with them the process was slow, required many personnel for individual effort and a chain of relay posts for relief of the casualty and the attendant.

For hand carriage (apart from ancillary equipment), physical strength, fitness, bravery and the *utmost patience* are the four main requirements for medical personnel engaged therein. From the heights of Keren stretcher bearers, six and even eight to a stretcher, took many, many hours to bring each casualty down to the chain of relief posts; on one occasion in the Arakan over the knife-edge, bamboo-matted hill crests of the steamy Yomas we saw sixteen stretcher bearers stagger into the A.D.S. who had taken seventeen hours to bring five serious casualties in from the R.A.P. only half a mile away in direct distance: the casualties were in reasonable condition, the bearers were exhausted.

Many attempts have been made to devise improved equipment for hand carriage in mountain warfare. The simplest and most effective individual means is, or rather was in view of alterations in clothing, the puttee used as a brow-band-sling in which the casualty sits. The trained bearer can with relative ease carry a patient for long distances down many hundreds of feet even in extremely difficult country.

Many types of stretcher have been attempted; but with trained bearers it is the ordinary standard British Army stretcher which probably proves to be the most useful in the end from its *simplicity, strength and stability*. Of modifications an R.A.F. pattern has proved of use, an A.R.P. pattern was tried out and the lightweight Parachute-Forces pattern would appear to have a definite value, *if such a pattern was available when required*. Of the single pole, variety of stretcher for two men to carry loaded downhill the "*Thompson hill-stretcher*" was found in Palestine, Eritrea and on the Indian Frontier to be most effective. Unloaded, one bearer could carry it uphill on his back, leaving hands and feet free for climbing; loaded, two strong men could easily carry a casualty who was strapped securely in the net-hammock beneath the pole down the most precipitous tracks.

In the Swiss and Norwegian armies much use is made of enclosed hammock types, after the manner of our Neil-Robertson stretcher, and transportation downhill is done by means of temporary improvised aerial ropeways to get patients down really precipitous places. From snow-covered slopes transportation on ski-stretchers is practised and training of medical units includes extensive instruction in improvisation and the use of standard equipment for this purpose.

With the modern development of motor vehicles, the Jeep, Landrover and tracked carriers can, in fact, penetrate into many a mountain range where horsed vehicles and the earlier motor ambulance could not possibly be used and this has materially eased the later stages of casualty evacuation from mountain warfare. When 17 Indian Division advanced over the 9,000 ft. Tiddim ranges and in the mountain fighting in the campaign in Italy, Jeeps and tanks gave great help in the transportation of certain casualties.

And now we have the most modern aid in the form of the Helicopter which it appears can in truth *snatch* casualties from all types of mountain heights where fighting formations can go; provided a small landing space can be made available and providing always that enemy attentions and the god of weather and storm permit. The comfort of the casualty and his subsequent freedom from shock and fatigue must be in great contrast to the results of the more ancient types of transportation.

But there are other medical problems of mountain warfare than those of casualty transportation. There is the main problem of health preservation.

It is in the mountain or rather in the *submontagne* areas that malaria can be so rife and so virulent; Salonika, the Balkans, the Arakan and New Guinea all immediately spring to mind in this connexion. It is in the mountain areas that temperature ranges are so great and sudden, from the hot steamy valleys to the cold snow-covered crests and biting blizzards; necessitating completely different types of clothing and the provision of heavy woollen over-clothing, and presenting special medical problems of exposure and exhaustion for battle casualties and sick. It is in the mountain areas that special medical conditions arise such as mountain sickness and snow blindness. It is in mountain areas that camp and picket hygiene can be so difficult.

Training, special instruction by those with previous experience and finally acclimatization will go far to solve these problems. We trust that we may receive in due course one or two articles from those engaged in the Korean mountain campaigns which will further this training for future generations. It is only wide general knowledge, adaptability and a patient perseverance which can finally cope with the medical problems of mountain warfare.

Clinical and Other Notes

A MEETING OF THE SERVICES GROUP OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

REPORTED BY

Colonel A. E. CAMPBELL

(Professor of Army Health)

Royal Army Medical College

SINCE this Group was last reported upon in these columns (in June 1950) its title has changed. The word "hygiene" has been dropped and the change may not pass unnoticed by those etymologically sensitive as a result of recent alterations in Corps Titles. I feel sure that no new controversy need arise and that those responsible for the change were moved not by any modern prejudice but by a desire for a shorter title.

The Group met at the R.A.M. College on Friday, March 9, 1951. Members and guests were welcomed by the Commandant (Major-General F. R. H. Mollan, C.B., O.B.E., M.C., K.H.S.), who referred to past associations of the College with the other Services and with the Group and to his pleasure in arranging for demonstrations of work carried on in the College and elsewhere on problems of Army and general health importance.

Dr. F. A. Belam, the Medical Officer of Health for Guildford and President of the Group, replied in a few graceful words and then opened the Annual General Meeting. This showed us democracy at work. Office bearers nominated for the coming year were elected without comment but a sharp division arose over the date of the next annual dinner which was only settled after a vote and a caution that as a dinner had already been held in 1951 any proposal would refer to 1952.

A return to work led visitors to the Hygiene Laboratory where bench demonstrations were arranged. Some of us who are used to the term "Personal Research" may not find "Applied Physiology" an improvement but under that heading were to be seen the combat-suit with reference to design and material; old and new web equipment and modern developments under consideration; types of goggles and glass and effect on colour appreciation and a practical demonstration of electromyography and its use in equipment development.

If spirits inhabit laboratories those in the Hygiene Laboratory may have been perturbed by the presence of a clinical psychologist with his electrical aids to laying bare, and, worse still, the recording of mental secrets. No

records of the results of performance tests carried out by visitors were, however, kept.

It was somewhat of a descent but perhaps in other ways a relief to turn to an exhibit of a colour test to be used with fixed dose chlorination of water and to a re-statement of the long-standing problem of the individual sterilizing outfit.

From water it was not difficult to pass to insects and a beautifully illustrated demonstration of the biting insect problem of the Arctic. Here was art in visual aids, with the global view, the general and local extent of the problem and an impressive representation of a wretched victim.

Schistosomiasis was the theme for the pathologists, not only a detailed and well-illustrated College "dem" but also schistosomes themselves in fresh specimens.

On another line was a concise exhibit on the search for the best substance for the impregnation of the first wound (field) dressing.

Back again to tropical medicine and this time to therapeutics of schistosomiasis, filariasis and leprosy, literature thereon and any questions answered.

To many people the College Library means enforced study or examination. On this occasion it was a pleasure to see it used for social purposes and the provision of refreshment for visitors. There too was a display of some of the contents of the old Army Medical Library and additions since that time such as copies of commissions, bills and petitions.

The Commandant in his Opening Address had given some indication of the variety of interests which would be catered for and these were matched by the spheres represented by visitors.

Amongst the Fellows and Visitors present were Dr. F. A. Belam (President of the Group and M.O.H. Guildford), Surgeon Captain D. Duncan, R.N. (President-Elect), Air Commodores F. E. Lipscomb and P. B. Lee Potter of the Medical Dept. of the Air Ministry, Dr. W. H. Bradley and Brig. A. E. Richmond of the Ministry of Health, Major-General T. Young (D. of A.H.), Brigadier W. R. D. Hamilton (Consulting Physician) and Brigadier A. Sachs (D. of P.) from A.M.D., Air Vice-Marshal T. McClurkin and Col W. W. S. Sharpe of the Ministry of Supply, Lt.-Col. E. F. W. Mackenzie of the Metropolitan Water Board, Brigadier D. Gordon Cheyne (Ministry of Defence), Dr. J. A. Struthers (M.O.H. Holborn), Dr. E. J. Smithard (M.O.H. Lewisham), Dr. J. Craig Lindsay (M.O.H. Aldershot), Dr. H. D. Chalke (L.C.C.), Dr. G. M. Frizelle (Secretary of the Group and Asst. Dean, London School of Hyg. and Trop. Medicine), Dr. F. G. Brown and R. Hannafill (Essex C.C.), Colonels C. V. Macnamara, F. J. O'Meara, E. J. S. Bonnett, H. E. Knott, C. R. Christian, M. R. Burke, R. T. P. Tweedy, P. J. L. Capon, Lt.-Cols. C. L. Day, E. J. Curran, Majors Curtois, Carrick, Pace, Ingham, Holman and Smart, Lieuts. Beeson and Kennerley and Warrant Officer D. M. Horne, R.A.F., an Associate of the Society.

Correspondence

FORWARD ANTI-DYSENTERY UNITS

DEAR SIR,

Indelibly impressed on one's memory and standing out in bold relief in one's war and post-war experiences are two somewhat arresting pictures—firstly the innumerable lorry-loads of medical casualties streaming back to Chittagong from the hard-pressed XIV Indian Division in the 1942-43 Arakan Campaign, and secondly the equally innumerable returned ex-soldiers one has seen in the last four years with persistent amœbiasis. If my memory serves me right this Division was losing a maximum of 9,000 casualties in a month (the Editor will no doubt correct me if I am grossly in error: of one figure I am certain, namely that the number of patients in my own C.C.S.—designed to hold 200—reached a peak of over 1,500 before the fighting started). The wheel has now turned full circle for quite a number of the cases who passed back over the dusty roads and by hospital steamer to lose themselves in the Base hospitals of India have again come through my hands in my capacity as a Specialist in Tropical Diseases in the Ministry of Pensions.

Turning over these experiences in one's mind one cannot but be deeply impressed no less by the crippling wastage of man-power in time of war than by the tragic and widespread chronic invalidism of the post-war period in these men—tragic because one felt all along that a planned approach to the problem of dysentery in the field could have reduced the wastage of man-power both in the Army and in post-war industry by a very considerable margin. The pity of it all is that the diagnosis and treatment of the dysenterics is incomparably easier in the acute stages than in the chronic, as workers in this field have come to know only too well. Here were these men, as the conveyor-belt of the "chain of evacuation" carried them further and further back into India, becoming less and less diagnosable and less and less treatable. Golden opportunities of rapid and efficient handling were thrown away as they found their way back, and back on the overcrowded railways, and many of them now afford sad illustrations of the chronicity and insidiousness of amœbic infection.

Arising out of these thoughts it has often occurred to one, since the formation of the Forward Anti-Malarial Treatment Unit, that a parallel unit which might be termed a Forward Anti-Dysentery Unit could very easily be formed. My contention is that for an infinitesimal outlay in equipment and personnel, this volume of wasted man-power could become a thing of the past. If indeed the evacuation of personnel contracting dysentery could be

rendered unnecessary this would indeed make a tremendous contribution to the success of any war waged in a tropical theatre.

The purpose of this letter is to put forward and develop this theme; if perchance it catches the eye of those in authority or someone who might feel disposed to make constructive criticisms in these columns, the concept of such a unit if it deserves to survive may not be stillborn.

Briefly, the Forward Anti-Dysentery Unit would be solely diagnostic in function, and would work with either one or two C.C.S.s depending on the incidence of bowel infections and the distance between medical units.

The personnel visualized would consist of 1 R.A.M.C. Officer, below the rank of Major, one R.A.M.C. Serjeant, 3 B.O.R.s and two R.A.S.C. drivers, The special training of the officer and of the serjeant would not take longer than six weeks. Highly trained laboratory personnel would *not* be used in these units. As regards the scope of the work, no attempt would be made to undertake bacteriology in any sense. Diagnosis would depend on sigmoidoscopy and microscopy. The keynote would be to get results on a severely practical basis.

Roughly, equipment would comprise one 1-ton and one 15-cwt. lorry, tentage for accommodation of unit personnel, one large tent (subdivided) for use as microscope-room, sigmoidoscopy-room and office, and tentage for commodes for collection of fæces. No tentage for bed-patients would be needed as the Unit would work on the site of a C.C.S. and in the closest touch with it, the personnel being on the ration strength thereof. Furniture—a few folding tables for office work, microscopy and instruments. A firm table 3 x 3 x 3 ft. for sigmoidoscopy. Medical Equipment—(say) 4 sigmoidoscopes (battery-illuminated), and accompanying requirements. One sterilizer, 2 microscopes and accompanying requirements.

The above details would need modification in the light of field experience.

May I end by reiterating that the provision of a few such units, one of which could cover a wide field of operations, would pay quite disproportionate dividends in the restriction of mass evacuations of sick: they would enable practically all dysentery cases to be treated to finality in C.C.S.s within sound of the guns and to return to their units in a few weeks.

Yours faithfully,

C. F. J. CROPPER, O.B.E., F.R.C.P.E.,
Lt.-Col. I.M.S. (Retd.).

BUREAU OF HYGIENE AND TROPICAL DISEASES,
KEPPEL STREET,
GOWER STREET,
LONDON, W.C.1.
April 18, 1951.

DEAR SIR,

In a letter published in the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, 1951, Feb., 96, No. 2, 142, your correspondent, Brigadier O. C. Link, remarks

that "Higher authorities do not always realize the limited circulation of such abstracts as the *Tropical Diseases Bulletin*." In case this statement may be read to mean that it is difficult to obtain the *Bulletin*, I should draw your attention to the fact that both the *Tropical Diseases Bulletin* and the *Bulletin of Hygiene* can be supplied to subscribers who ask for them from the Bureau of Hygiene and Tropical Diseases, Keppel Street, Gower Street, London, W.C.1, or may be ordered through any bookseller. The subscription price of each *Bulletin* is £2 10s. per annum for 12 issues and index; single copies are priced 5s. 6d.

Printing troubles have recently caused delay in the issue of the *Bulletins*, but it is hoped gradually to correct this.

May I also remind you that for many years it was the practice of the Editor of your Journal to reproduce, under the heading "Current Literature," selected abstracts from the *Bulletin of Hygiene*. The source of these was always acknowledged, and we have no objection to this procedure.

During the war years the Bureau was responsible for editing and producing the *Bulletin of War Medicine*, which was intended primarily for the assistance of Service medical officers; and though publication of the *Bulletin of War Medicine* has been discontinued, the other *Bulletins* published by the Bureau continue to provide much information of direct interest to Service medical officers.

I recall with pleasure the kind and appreciative letter you wrote to the Editor of the *Tropical Diseases Bulletin*, from India, in April 1939, in which you referred to the *Précis of Abstracts* which was a feature of the *Bulletin* in those days.

Yours faithfully,
(Sgd.) CHARLES WILCOCKS.

Travel and History

"SANGERS,"
WEST CHILTINGTON COMMON,
PULBOROUGH,
SUSSEX.
February 22, 1951.

SIR.

While spending recent long winter evenings looking through old volumes of *Punch* in my possession I came across the following articles, letters, etc., in connexion with the Army Medical Service during the "post-Crimea" period.

Some of these may be familiar to your readers, or may even be in the archives of A.M.D., but for the benefit of those who have not access to old *Punches* I venture to reproduce them now in the hope that they may provide

some amusement, and also evidence that in those days too our Service had its difficulties and controversies with "Higher Authority" over establishments, pay and prestige.

I would add that these are copied verbatim and therefore in the language and style of the period in question.

Should permission from Mr. Punch be necessary for re-publication, and you consider them suitable for the Journal, you will no doubt be able to obtain this. (The Proprietors of *Punch* have very kindly given permission for reproduction.—Ed.)

I am,

Yours faithfully,

G. P. KIDD,
Brigadier (R.P.).

Reproduced by permission of the Proprietors of Punch.

28 May, 1864.

THE RECRUITING SURGEON

We are not yet at war, so that there is no extraordinary number of legs and arms in the Army requiring amputation, nor do any bullets need to be extracted from the bodies of any British soldiers, except those engaged in fighting the Maoris, not to mention the blackamoors of Ashantee, who fight shy. What is there then to account for this advertisement, which has appeared in *The Times*?

ARMY MEDICAL DEPARTMENT, 6, WHITEHALL YARD, 22nd April, 1864. ACTING ASSISTANT-SURGEONS being required, for temporary service with the Army in the United Kingdom, gentlemen duly registered to practise medicine and surgery under the Medical Act of 1858, and desirous of obtaining such appointments, may apply immediately to the Director-General for the printed form required to be filled up by every Candidate previous to employment. They will receive pay at the rate of 10s.-a-day, and allowances equal to those of a Staff Assistant-Surgeon. Gentlemen are not eligible for these appointment whose age exceeds forty years.

J. B. GIBSON, M.D., Director-General.

Whence the pressing demand for Army Surgeons, manifested by the foregoing notice? Simply, from the revocation, at Head Quarters, of the Royal Warrant of 1858, which assured Surgeons in the Army of suitable relative rank, proper precedence, and the social position due to gentlemen. The faith thus pledged was coolly broken by certain other orders called the "Queen's Regulations," issued in 1859, which rescinded the QUEEN'S Warrant of 1858 with a dishonesty most derogatory to HER Majesty's name, audaciously connected with them. These new arrangements, dictated at the instance of so-called "combatant" officers, provided that the medical officers should rank as civilians, and be treated as snobs. The consequence is what has necessitated the above advertisement, there is a surgeon-famine in the Army. Men of education refuse an office which subordinates them to a lad who is possibly a contemptible puppy. Service in the Army, instead of being sought through the ordeal of a competitive examination by spirited young Surgeons, has to be importunately tendered to practitioners of the mature age of forty. Their practice must be very unprofitable if they can gain anything by exchanging it for temporary employment in the Army. When the gallant combatant officer, who insists that his Surgeon shall be a snob, comes to have his leg removed, or a bullet extracted from his hip-joint, he will perhaps lament that the operation has to be performed by an operator for whom Dr. GIBSON, the Director-General was reduced to advertise, in his capacity of Recruiting Medical Officer.

COLONEL NORTH, in a late debate on the Estimates, stated that there were two hundred vacancies for Army Surgeons the other day, and that only six candidates presented themselves for examination. If war ensue, and the DUKE OF CAMBRIDGE, in action, should unfortunately receive any injury needing surgical aid, it is to be hoped that the Surgeon who shall render aid to HIS ROYAL HIGHNESS will be one of those six, in the meantime, perhaps, the restitution of the Royal Warrant of 1858 will relieve Dr. GIBSON of the necessity of touting for surgeons to join the Army.

18 June, 1864.

THE DESERTS OF ARMY DOCTORS

It appears that there is a great dearth of Surgeons in the Army, particularly in the Indian branch of it. No Assistant-Surgeon has been gazetted for the Indian service since 1861. Such is the statement of "X" in the *Morning Post*, and according to "A SUFFERER," writing in the same paper, Government has adopted a singularly likely measure to remedy the surgeon-famine amongst Her Majesty's forces in India:—

"The pay and allowances have always hitherto been equal to £1,200 a year, but are now reduced to £800, so that at one fell swoop every Regimental Surgeon in India is at once deprived of £400 a year of this hard-earned income."

As we tell the plundered Danes, half a loaf is better than no bread, and £800 to £1,200 is as more than half a loaf, according to COCKER, or COLENSO, who is an authority at any rate on this sort of numbers. But the expenses of living in India leave an officer little to bless himself with out of an income of £800; so that there is moderation in "A SUFFERER'S" remark that:—

"After this, if medical men can be found to enter the Army, then, I say, they richly deserve all they get."

Certainly they do; and very much more.

6 August, 1864.

THE ARMY-SURGEON FAMINE

An intercepted letter

TO EARL DE GREY AND RIPON

MY DEAR DE GREY,

SOMETHING must be done to provide the Army with competent Surgeons. It seems that they are not to be had at the terms we offer them. Men of education will not come forward to compete for appointments by which they do not acquire the position of gentlemen, and the pay necessary to maintain it. That is not surprising.

What, then, is to be done? Common sense, uninformed of military matters, would suggest the immediate increase of Army-Surgeon's pay, and recognition of their social standing. But the former step would be difficult for Mr. GLADSTONE, and the combatant officers will never stand the latter. If ever so many Surgeons were killed or wounded in operating under fire, it would not signify, the others look upon them as civilians, and something lower. I may say that they regard them as something intermediate between gentlemen and tailors. This may be absurd. It is perhaps absurd even of them to despise tailors, but the fact remains that they do despise tailors, and would not associate with tailors at all, and will not submit to associate on terms of equality with Surgeons. There is no arguing with a prejudice.

Now I should like those who are capable of judging the question to consider whether it would not be quite possible to procure plenty of Surgeons for the Army, cheap, and perfectly competent, by the simple expedient of revising the standard of qualifications at present fixed as necessary to the competence of Army-Surgeons. I don't know, but it strikes me, that a man could learn to cut off a leg perfectly well without learning more

of anything else than a butcher usually knows. I don't see that even the ability to perform the most complicated operation in surgery requires any more education than what has generally been received by a common cabinet-maker. Why shouldn't a man tie an artery as expertly as possible, without being exactly able to pronounce its Latin name? I suspect the hitch is in that Latin. And if, in addition, you require Greek, and modern languages, you render it still more insuperable.

So much for surgery. Now as regards medicine. Considering how doctors differ, may we not safely conclude that what they call medical science is all humbug, and all that is really useful in medicine is the knowledge of what to give for this or that complaint, which might easily be acquired by any druggist's apprentice. I put what they call diagnosis, and all that, out of the question. I suppose it's easy to tell one fever from another, and organic diseases can't be cured, and men who are afflicted with them are of no use in the Army. If, then, a surgeon need know no more beyond his art than a skilled mechanic, and if all the knowledge requisite for a physician is no more than might be learned by a shop-boy behind a counter, why exact more from an Army medical officer? Why catechise him in botany and chemistry, and philosophy? Examine him in his own business, and nothing but that. In that subject him to competition if you like; invite Surgeons to compete for employment as you might hairdressers. Then you will get the sort of fellows you want; fellows who will be satisfied with moderate pay, who will not want, and indeed would be disinclined, to associate with officers and gentlemen; would be content to mess, where they would feel at their ease, with the non-commissioned officers.

In short, if we persist in not giving Army-Surgeons the pay or the treatment suitable to educated officers and gentlemen, we must make up our minds to accept illiterate snobs for Army-Surgeons. By

GEORGE.

Horse Guards, August, 1864.

20 August, 1864.

A CHAT ABOUT THE NETLEY MONUMENT

SCENE—Inside a First Class Carriage. *Swell* and *Surgeon* passengers.

Swell: Deuce! (Winking and blinking violently; presses finger to his eye.) Ah!

Surgeon: Something in your eye?

Swell: Cinder from the engine.

Surg.: Let me take it out.

Swell: Thanks.

Surg.: Where do you feel it?

Swell: Here—just here.

Surg.: Under the upper eyelid. Wait a minute—must evert the lid. Don't be alarmed (taking out pocket case); only want this thing. (Accomplishes the operation by the help of a small probe.) There! Out?

Swell (winks and blinks): Out! Thanks. By Jove! (Observing case returned to pocket.) Lucky to have a Surgeon in the train.

Surg.: That is lucky, sometimes.

Swell: Too often. Every train ought to carry a Surgeon.

Surg.: Yes, and an Assistant Surgeon, to operate if necessary on the other. A man can't cut off his own leg.

Swell: That is one of the things that no fellow can be expected to do. A Surgeon in a railway-train is as liable to be smashed as any other fellow. He is like a Surgeon under fire. Right and proper that Netley Monument.

Surg.: To the fifty-four medical officers who fell in the Crimea.

Swell: Monument will be rather a fine thing.

Surg.: Yes; but it won't do.

Swell: Why?

Surg.: It won't encourage fifty-four more, or any number of fellows, to fall in the Crimea or anywhere else on the present terms.

Swell: Ha! Yes. There's a regular Surgeon-Famine in the Army. It's a great bore.

Surg.: The famine might be relieved easily enough.

Swell: What do the Surgeons want? Better pay?

Surg.: Well, yes; but more than that; better treatment. Fraternity and equality.

Swell: Ah yes! I understand. To stand on the footing of other officers and gentlemen.

Surg.: That's all. It isn't much.

Swell: Well, you see, a Queen's warrant was issued to give them that. But the combatant officers wouldn't stand it.

Surg.: So when the doctors had been hooked in, the warrant was coolly rescinded.

Swell: It certainly was an awful swindle.

Surg.: Talk of combatant officers! Isn't a fellow who may have to take up an artery in a shower of bullets as much a combatant officer as a General who as often as not directs strategic operations at a safe distance from them? if not exactly, as the showman says, "him taking good care to keep out of 'arm's way?"

Swell: That was "BONAPARTY," I think.

Surg.: "NAPOLEON BONAPARTY." Wasn't THOMSON, who was left on the field in charge of the wounded all night, which killed him, a combatant officer?

Swell: As much as any fellow who won the Victoria Cross.

Surg.: There was a time, to be sure, when Army-Surgeons were a rough lot.

Swell: In short, when Surgeons were Snobs. It's odd how long prejudice survives. The tradition of the Army is, that they are Snobs still.

Surg.: Yes, and good care is taken to keep them Snobs by refusing to treat them as gentlemen. Able Surgeons won't accept the position of Snobs. So the authorities are absolutely been reduced to advertise for Acting-Assistant-Surgeons.

Swell: Certainly the cleverest way to get the compound of Surgeon and Snob which they appear to want. Only I'm afraid it doesn't answer. Have an idea! As they are resolved that the medical officers in the Army shall be Snobs, they shall head their advertisements: "Wanted, Snobs for Surgeons."

Surg.: They will assuredly get no Surgeons but Snobs, unless they give in. Decent fellows, men of education, steadily refuse to compete for the service. Doctors do agree on this point; and their unanimity is wonderful.

Swell: It is very plucky of them, and does them the greatest credit. I admire their spirit, by Jove, the medical profession hanging together in this way— Though you'll say the legal ought rather to do that—is just what proves that they are not Snobs ready to underbid one another, like bagmen.

Surg.: I think we've shown the Horse Guards that we are independent gentlemen, anyhow. Surgeons in the Army must have their claims conceded, or the Army will have to do without Surgeons.

Swell: The thing is to remove the absurd prejudice against Surgeons. Ha! Have an idea! The way would be to place the medical profession on a level with the military, and the legal. Make a distinguished Surgeon a Peer.

Surg.: When you've found your distinguished Surgeon.

Swell: Ha! By Jove! Well, I think I have. Fine idea. Will mention it to PALMER-STON. (Train stops.) Got a card? Thanks! Here's mine. Deuced glad to have met you. Au revoir. (Exit.)

Surg. (reading card): The EARL OF PLINLIMMON. Well, to be sure! I thought that young fellow was a gentleman.

17 September, 1864.

SNOBBS AND SURGEONS IN THE ARMY

Pray don't imagine, PUNCH, that the Surgeon-Famine in the Army is the fault of the SWELLSS. I suppose I am what is called a Swell. My ancestors came in with CANUTE. They have never exercised any branch of industry, and have always lived sumptuously on the labour of others. I myself am in the Army, simply because I think I ought to be something more than a Swell, and am fit for nothing else so much as for a Soldier.

Now, of all the fellows in a Regiment, I assure you, I consider the Surgeon to be, generally, the most of a gentleman. He is at least as much of one as any of them, and he has, if regularly appointed, been made as much more of a gentleman than the rest as a much better education than they have had could make him. The indignity which Army Surgeons are treated with proceeds not from pride of rank and birth on the part of any of their fellow officers, but from a consciousness of the want of those advantages on the part of some of them. In this commercial country many a fellow enters the Army who never had a grandfather that he could give any account of, and the best that such a fellow can say of his pedigree usually is that his father was a tailor. More commonly an officer of that class of fellows is the son of a large mercantile rogue, or a swindling railway jobber. Well, he cannot help that; and he is rich, and his own money at least was not ill-gotten; and he might be a gentleman if he chose. But instead of that, he is too often a purse-proud Snob. This is the sort of fellow that thinks it necessary to assert his position by insisting on the abasement of Army Surgeons. It is not the Swells in a regiment, PUNCH, who are insolent to the Surgeon, but only the Snobs. Mushrooms these Snobs are called by men who have less respect for a mushroom than I have, for I consider it an excellent ingredient, not an objectionable one, in a mass. Those who term them mushrooms, will further say that, inasmuch as they peculiarly abound in the Cavalry, the majority of them are Horse Mushrooms; but, comparing these bloated and extremely offensive Snobs to fungi, I would rather name them Toadstools.

I consider the Surgeon quite as much a combatant officer as myself. We don't in these days, charge with lances in rest, and we no longer brandish battle-axes and maces. He is as likely to be struck down at any time by disease, sometimes by shot, as I am. I wish no individious distinction to be made between him and myself. I would not assign him the uniform of a Beadle. Let him wear that of his relative rank in the Army, or be allowed to dress in plain clothes, so that he might, as perhaps he would like to, be distinguished from a combatant fool.

Unless the reasonable demands of the Army Surgeons are granted, I shall be obliged to throw up my Commission. Suppose I am killed in action, well and good. I am prepared for that. But I may be wounded. For that I am prepared too. I am always ready to lose a limb for my country. But my country must take care that it shall be skilfully amputated. I expect my country to provide that any operation which its service may require me to undergo shall be performed safely, quickly, and pleasantly, as much as it can be. Certainly I value my blood too highly to allow it to be spilt by a bungling operator. I don't at all relish the idea of an Acting-Assistant Surgeon, obtained by advertisement, attempting to extract a bullet deeply lodged in the complicated anatomy of your humble servant;

ARMIGER.

Rag and Famish, Sept., 1864.

8 October, 1864.

THE CONDITION OF THE ARMY MEDICAL OFFICER

That learned body, the College of Physicians, has appointed, so we learn, a committee to "inquire into the condition of the army medical officers." We are delighted to hear it, and wish the committee a happy deliverance in due time; but it occurs to us that the

inquiry is somewhat extensive, and not particularly well defined. It is, however, clear that the investigation has one limit; it cannot be into the conditions of the army medical service (the which we regret, for it needs looking into), since the Fellows would have said so had they meant it. We infer that as the College is medical, the committee medical, and the conditions which they understand medical, this must be a Medical Board inquiry into the conditions of the bodies of their brethren, which are at times exposed to danger, and into the conditions of their minds under the wrongs which they suffer; and we hope it will aid in improving the conditions of their purses.

[NOTE.—Unfortunately Vols. XLVIII and XLIX, covering 1865, are missing from my collection of *Punches* so I cannot quote from these. I imagine, however, that this "correspondence" continued in the same vein during that year, as it does in the following.]

10 March, 1866.

SAD WANT OF SURGEONS IN THE ARMY

DEAR READER, The Report of the Committee appointed to inquire into the alleged grievances of medical officers in HER MAJESTY'S military and naval service, has, in so far as it concerns Army Surgeons, just appeared. Its appearance has necessitated the publication of the following announcement:

WANTED for SERVICE in the BRITISH ARMY, a number of highly accomplished young Surgeons, possessing not only first-rate professional attainments, but also the advantage of a good general education, and NOT PROUD. They are required to be FELLOWS of the ROYAL COLLEGE OF SURGEONS, and also to have obtained an English PHYSICIAN'S DEGREE. With the breeding, habits, and manners of gentlemen, they must combine a submissive temper, so as to be able to stand any extent of SNUBBING that may be inflicted on them by COMBATANT OFFICERS, and, under occasional circumstances, to CLEAN BOOTS. They must be willing to occupy a SIDE TABLE at MESS, and ready to jump up and CARRY PLATES at call. When unavoidably summoned to take part in any COURT MARTIAL or other BOARD of INQUIRY whereat their assistance is absolutely necessary, and whereon COMBATANT OFFICERS are SITTING, THEY must be CONTENT TO STAND. None need apply that have any objection to endure any indignity. They must be prepared to accept and wear, without remonstrance, ANY UNIFORM that may be assigned to them, however GROTESQUE, as the discipline of the Army requires that they should be rendered sufficiently ridiculous to distinguish them from Combatant Officers. It will also be requisite for them to acquiesce in the REGULATION which DENIES those of them who chance to die the usual MILITARY HONOURS at their INTERMENT, even in those cases wherein the deceased Surgeons have died operating under fire. N.B. A slight increase of PAY. For further particulars inquire at The Tatters and Starvation Club, the Horse Guards, and the War Office.

21 April, 1866.

THE SOLD ARMY SURGEONS

Some fuss has been made in the medical profession about an alleged breach of faith towards the medical officers of the Guards. Their grievance is, that whereas they were induced to enter that corps at the time of the Crimean war by the representation that promotion in the Guards was regimental, the COMMANDER-IN-CHIEF has recently signified his intent to fill an appointment of battalion surgeon therein by brigade promotion. This they regard as the introduction of a system which will inflict serious injury upon themselves, who entered under that of regimental promotion; inasmuch as it

is likely to prevent them from ever reaching the higher grades in the service to which they would otherwise rise in due course. From the reply of the MARQUIS OF HARTINGTON to impertinent questions in the House of Commons, it appears that the Government has no intention to take any measures for compelling his Royal Highness the COMMANDER-IN-CHIEF to observe any absurd punctilio in dealing with medical officers of the Guards as to the fulfilment of a promise dictated by past expediency.

This is the way to treat those snobs of Army Surgeons. What if, notwithstanding that there are plenty of medical men, there were during the last year only seventeen candidates for the Army Medical Service, of whom seven were rejected? What though the TIMES is quite correct in the following statement:

"That the public medical service is distasteful to the profession is shown in the small number entering and the large number of resignations after, as since 1850 up to the present time no less than 137 medical officers have left the Royal Navy, and during the same period 117 have voluntarily left the Army even after seventeen years' service."

A scarcity of surgeons in the Army and Navy is of very small importance in these weak piping times of peace. When war breaks out, then it will be soon enough to offer inducements sufficient to tempt medical gentlemen to accept commissions in the military and naval service. No doubt they will be caught as easily as others were caught before them, and the engagements into which it may be necessary to enter with them for that purpose can afterwards, when peace is restored, be once more quietly broken, as usual, at the convenience of Headquarters.

8 September, 1866.

THE MEDICAL OFFICER'S FRIEND

We understand that the Surgeons of the United Kingdom contemplate getting up a subscription for a testimonial, as valuable as they can afford, to be offered to the DUKE OF CAMBRIDGE, in acknowledgment of the earnest and successful efforts which his Royal Highness has ever made to uphold the position and maintain the rights of medical officers, and altogether to promote, as highly as possible, the efficiency of the Medical Department of the British Army.

6 October, 1866.

THE ARMY AND NAVY RE-ORGANISED

The re-organisation of the Army and Navy appears to be in course of being accomplished by private enterprise. One day last week a contemporary announced that:

"At the Annual General Meeting of the United Service Company (Limited), held on the 13th instant, a dividend of five per cent was declared for the past year.

The United Service thus appears to be in the hands of a private company. How quietly the transfer from the War Office and the Horse Guards and the Admiralty has been effected! It must have been authorised by Act of Parliament, smuggled with wonderful secrecy through both Houses. As the speculation pays five per cent, it is a profitable one. Let us hope that, since the United Service Company is thriving, the United Service has improved. Perhaps the money which has heretofore been squandered will henceforth be saved, and partly devoted to a reasonable increase of soldiers' and sailors' pay. Very likely the grievances of the Army and Navy surgeons will soon be redressed, and their just demands will be conceded, insomuch that the United Service Company will not have to advertise, as the Government which it seems to have superseded had, for medical officers of an inferior description. The fact that the United Service is now under the management of a joint-stock company (limited) is not generally known. When it comes to be, then, perhaps, there will be no longer any lack of duly qualified and decently educated candidates for medical commissions in Her Majesty's land and sea forces.

17 November, 1866.

FENIAN SURGEONS IN THE ARMY

The Fenians, and all such friends of England, will be overjoyed by accounts received by the PALL MALL GAZETTE from the Army Medical Training School at Netley. These accounts the PALL MALL GAZETTE calls more pleasant than surprising; though that is not certain. The fact is, that the unpopularity of the military service with the medical profession is so great, that, as our discerning contemporary says:

"For some years it has hardly been possible to obtain any English students, and not many Scotch. The Irish schools have been swept freely. The present batch of students at Netley exhibits this peculiarity of national distribution in common with others of the last few sessions, but, it seems to have a greater variety of 'mauvais sujets' than usual. Two of these medical gentlemen have been lately expelled for drunkenness, and one publicly reprimanded."

Now, the Fenians will of course rejoice to learn, first, that the majority of students in training for Army-Surgeons are Irish, and, secondly, that they are "mauvais sujets"; because an Irishman who is also a "mauvais sujet," or bad subject, may be presumed to be, or to be ready to become, a Fenian. We all know what work a Fenian Army-Surgeon would be likely to make with a knife in his hand, and a British officer at his mercy. The notion of Fenian Army-Surgeons in Her Majesty's Service, must, of course, then, be extremely pleasant to Mr. STEVENS and the rest of the Brotherhood; but surely, in the present state of Europe, and in the face of their own conspiracy, the existing condition of our Military Medical Service must be still more surprising. It surprises us immensely when we think how perseveringly the DUKE OF CAMBRIDGE has been for several years labouring to carry out the regulations of the Royal Warrant designed to meet the wishes of medical officers; and especially when we consider the signal encouragement to enter the Army which his ROYAL HIGHNESS has just afforded the medical profession by promoting Mr. ELKINGTON, of the Guards, in defiance of all remonstrance—of course, on the grounds of pure merit—over the heads of his seniors.

[NOTE.—Mr. PUNCH no doubt took some credit for our eventual triumph over opposition, as is suggested by the following final extract from a much later period.]
30 July, 1898.

THE ARMY SURGEON'S VADE MECUM

Question: On joining the army, had you more than one qualification?

Answer: I had two, my knowledge as a scientist and the ordinary education of an officer. I had to become acquainted with military law, and other learning proper to one assuming command.

Q.: On joining the service, how were you treated?

A.: Scarcely to my satisfaction, for although I had my military qualification, that "spécialité" was ignored, and I was called surgeon this or surgeon that.

Q.: Can you give a reason for this?

A.: It was alleged that I was not a combatant officer, and consequently had no right to the privileges of my comrades.

Q.: As a matter of fact, did you not perform the duties of a combatant officer?

A.: The many Victoria Crosses gained by the Army Medical Department is a sufficient answer.

Q.: Were there other officers who belonged to a department as you did?

A.: Yes, there were paymasters, and officers undertaking the transport of stores.

Q.: And were they called Pay Captains and Transport Majors?

A.: No; which made it harder for Brigade-Surgeon Lieutenant-Colonels.

Q.: But you are talking of the past; how about the present? Has anything been done to improve the status of Army Medical Officers?

A.: Yes; the prefix of "Surgeon" has been abolished, so that now a military doctor may pay a visit without the fear of being announced as a Sergeant-Major.

Q.: Has this measure given satisfaction?

A.: Very great satisfaction, for it has removed a grievance, and paved the road to the best men flocking to the colours.

Q.: And what will be the probable result?

A.: That the members of the Royal Medical Corps will in future be as conspicuous for their scientific attainments as they have already been for their bravery and devotion to duty.

Matters of Interest

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE

A LABORATORY meeting of the Society, attended by about 120 Fellows and visitors, was held in the Royal Army Medical College on March 15, 1951, under the chairmanship of Major-General Sir John Taylor, *C.I.E.*, *D.S.O.*, *M.D.*, *LL.D.*, *D.P.H.*

The proceedings were opened by the Commandant, Major-General F. R. H. Mollan, *C.B.*, *O.B.E.*, *M.C.*, *K.H.S.*, who welcomed the Society to the College. The President in his reply informed the meeting of the election to the Fellowship of the Royal Society, which had been announced that day, of their secretary, Brigadier J. S. K. Boyd, a former Director of Pathology and Assistant Professor at the College.

A prominent exhibit was the original manuscript Minutes of the meeting held at the Colonial Office on January 4, 1907, at which the Society of Tropical Medicine and Hygiene was founded. These had been presented to the Society by the D.G.A.M.S., whose father, then Dr. James Cantlie, had convened the meeting, at which the Corps representative was Lieut.-Col. C. H. Melville, *R.A.M.C.*, Professor of Hygiene at the *R.A.M.* College.

The Pathology Department had arranged a small demonstration of original drawing and microscopical preparations made by Sir William Leisham, the memorial tablet to whom was spot-lighted for the occasion.

The meeting will be reported in detail in the Society's *Transactions*, but among other exhibits, great interest was shown in "Biting Insects of Northern Canada," in the production of which Major R. A. Smart, *R.A.M.C.*, had participated. Among civilian friends of the Corps and College whom we particularly welcomed were Dr. G. W. M. Findlay, who shared with Dr. A. McPherson a demonstration of "Nutritional Disorders and Native Customary Prophylaxis on the Gold Coast," and Mr. P. G. Shute—"Characters and Arrangements of the Pigment of the Human Malaria."

The Headquarters Mess had provided refreshments in the Library, where some of the older books and papers were on show: bench notebooks of Sir David Bruce and Timothy Lewis (of *Trypanosoma lewisi*), with some of the latter's printed papers and an enlarged photograph of him: Sir William Leishman's draft pathology programme for the first Junior Officers' course to

be held in the present college building: relics of Sir John Pringle, Physician-General and an early exponent of the doctrine of Positive Health: and documents going back to the time of Marlborough's wars.

J. B. N.

A GUEST NIGHT was held at the Headquarters Mess on Friday, March 29. The chief guests were Major-General J. J. Magner and Brigadier H. T. Findlay who were being "dined-out" on their coming retirement from the Corps. The other guests included Dr. Himsworth, Secretary of the Medical Research Council, Dr. Andrew Topping, Chief of the London School of Hygiene and Tropical Medicine, Major-General L. D. Grand, Director of Fortifications and Works at the War Office, Dr. Owston, one of the Chief Medical Officers of the Ministry of Supply and Lieutenant-Colonel Pletcher, Medical Air Force Attaché to the U.S. Air Force.

The Director-General in proposing the health of General Magner and Brigadier Findlay referred to their long and valuable services to the Corps. He referred to General Manger's service in Russia and in the Egyptian Army and Sudan Defence Force, also to his command of No. 11 R.A.M.C. Training Depot at Beckett's Park, Leeds, in the early period of the war. The D.G. mentioned Brigadier Findlay's outstanding services at the Army Vaccine Laboratory, which he commanded during four years of the war, and his recent appointment at Porton under the Ministry of Supply.

The D.G. also said he was sure that all would be pleased to know that it had been decided that the Army Vaccine Laboratory should be renamed the David Bruce Vaccine Laboratory in memory of Major-General Sir David Bruce, one of our outstanding pathologists.

THE Director-General, A.M.S., attended the Annual Meeting of the Court of Governors of the London School of Hygiene and Tropical Medicine on March 28.

THE "Grey and Scarlet" Ball was held on Q.A. Day at the Q.A.R.A.N.C. Depot, Bramshott, on March 27. The Director-General and Lady Cantlie were present.

THE Q.A.R.A.N.C. Depot, was inspected on the morning of March 21, and The Connaught Hospital in the afternoon. The D.G. had lunch in the Depot Mess.

ON March 19, the D.G.A.M.S. visited the National Institute on Medical Research at Mill Hill and was shown round the building by Sir Charles Harrington, the Director.

THE Annual Dinner of the Airborne Medical Society was held on March 17. The Chairman was Colonel MacEwan and the D.G. replied to the toast of the

guests. Others present were Brigadier Eagger, Colonel Rigby-Jones, A.D.M.S. 16th Airborne Division, Lieutenant-Colonel Warrack, Major-General Bower, Major-General Lathbury, Lieutenant-Colonel Wheatley and Major Alastair Young.

AN "At Home" was given by Mr. W. E. Tucker at the Royal College of Surgeons on March 15, on the occasion of an Address by Sir James Learmonth on the "Surgery of the Spleen." Officers present included the D.G.; Brigadier A. G. Harsant, the Consulting Surgeon; Lieutenant-Colonel Macdougall, Reader in Surgery at the R.A.M. College, and Major-General Tomory, D.D.M.S., Eastern Command.

THE WAR IN KOREA

CASUALTY evacuation under modern conditions as shown in the accompanying photographs; received from the Public Relations Section, H.Q., B.C.O.F., Japan, may be of interest to many readers.



Stretcher-bearers with Australia's Third Battalion in Korea didn't know very much about the medical side of warfare before the Korean incident—but they've learned a great deal since then. This casualty, having been safely brought over the frozen hills by the bearers, will soon be heading towards a casualty clearing station by jeep ambulance.



Having chased Communists out of a tough patch of hilly country in Central Korea, these Diggers of Third Battalion, Royal Australian Regiment, carry out their casualties. Freezing conditions in the hills make essential the quick evacuation of wounded, and their regimental mates are full of praise for the sterling job done by the cheerful, tireless "body-snatchers" of the Battalion. Most of these stretcher-bearers didn't even know what a field-dressing looked like before the Korean incident—but they've picked up a lot of useful information since then.

THE Annual Dinner of the Burton-on-Trent Branch of the R.A.M.C. Association was held on March 14. The D.G. proposed the toast of the Association.

DR. MYER MEDINE, *M.B.E.*, Lt.-Col. R.A.M.C., retd., was married to Dr. Ruth E. Cortell at Boston, Mass., U.S.A., on April 1, 1951.

ON return to the United Kingdom, Colonel E. M. Hennessey has been posted from the Depot to be A.D.M.S. North Midland District.

Extracts from the "London Gazette"

HONOURS AND AWARDS

London Gazette 16.3.51

The King has been graciously pleased to confer the award of "4 Clasps" to the Territorial Efficiency Decoration upon the following officer:

R.A.M.C.

Colonel H. F. Humphreys, *O.B.E., M.C., T.D., M.B., retired.*

The King has been graciously pleased to confer the award of "3 Clasps" to the Territorial Efficiency Decoration upon the following officers:

R.A.M.C.

Col. J. F. O'Grady, *T.D.* (Hon. Col. 42nd (East Lancashire) Divl. *R.A.M.C. (T.A.)*).

Col. M. H. Summers, *D.S.O., T.D., D.L.*

The King has been graciously pleased to confer the award of "2 Clasps" to the Territorial Efficiency Decoration upon the following officers:

R.A.M.C.

Brig. A. L. Crockford, *D.S.O., O.B.E., M.C., T.D., M.B., K.H.S.*

Col. W. W. Crawford, *T.D.* (now *S.R., R.A.M.C.*).

Lt.-Col. M. W. Gonin, *D.S.O., T.D.*

Lt.-Col. A. H. D. Smith, *M.C., T.D., M.B., retired.*

Maj. (Hon. Col.) E. Walsh, *T.D., retired.*

Maj. R. E. M. Fawcett, *T.D., M.B.*

Maj. K. W. N. Palmer, *T.D.*

The King has been graciously pleased to confer the award of the "1st Clasp" to the Territorial Efficiency Decoration upon the following officer:

R.A.M.C.

Col. R. W. Nevin, *T.D., M.B., F.R.C.S.*

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration and 2 Clasps" upon the following officer:

R.A.M.C.

Lt.-Col. G. L. Malcolm-Smith, *M.B., F.R.C.P.*

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration and the 1st Clasp" upon the following officers:

R.A.M.C.

Maj. (Hon. Lt.-Col.) W. P. Purvis, *M.B.*

Capt. (Qr.-Mr.) (Hon. Maj. (Qr.-Mr.)) J. Ashcroft.

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration" upon the following officers:

R.A.M.C.

Col. R. F. Guymmer, *M.D.*

Lt.-Col. H. L. Sheehan, *M.D., M.R.C.P.*

Maj. (Hon. Lt.-Col.) C. K. Colwill, *M.B.*

Maj. C. H. Pauli.

Capt. (Hon. Maj.) F. C. O'Mara.

R.A.D.C.

Capt. J. A. G. Starnes.

PROMOTIONS

(1) *R.A.M.C.*

- (a) To be Colonel:
Lt.-Col. H. E. Knott, *O.B.E.*, M.D. 28.3.51
- (b) To be Lt.-Col.:
Maj. M. F. Kelleher, *M.C.*, M.B. 28.3.51.
- (c) To be Majors (Short Serv. Commns.):
Capt. (Miss) C. F. Lyons (retaining present seniority) 22.11.50
Capt. (Miss) R. M. D. Morrell, *M.B.E.*, M.B.
(retaining present seniority) 2.12.50
- (d) To be Capt. (Short Serv. Commns.):
Lt. D. Coulthard, M.B. 5.3.51
- (e) To be Capt. (Qr.-Mr.) (Short Serv. Commns.):
Lt. (Qr.-Mr.) W. Wright 10.1.51
- (f) To be Capt. (A. & T.) (Short Serv. Commns.):
Lt. R. J. Green 13.2.51
Lt. C. Creffield (with seniority 15.8.50) 1.1.51
- (g) To be Lts. (A. & T.) (Short Serv. Commns.):
2/Lt. P. Sheehan 16.2.51
2/Lt. J. Sloan 16.2.51
2/Lt. G. Murray 16.2.51
2/Lt. W. W. McFarland 16.2.51

(2) *R.A.D.C.*

- (a) To be Maj.-Gen.:
Col. J. Wren, F.D.S. 5.3.51

APPOINTMENTS TO SHORT SERVICE COMMISSIONS

R.A.M.C.

- (a) Major Clare Frances Lyons from Women's Forces emplyd. with the R.A.M.C. (Short Serv. Commn. Type "B"), to be Capt., 22nd Nov. 1950.
- (b) Major Robina Mary Duncan Morrell, *M.B.E.*, M.B., from Women's Forces emplyd with the R.A.M.C. (Short Serv. Commn. Type "B"), to be Capt., 2nd Dec. 1950.
- (c) To be Lts. (Qr.-Mrs.):
- | | |
|---|---------|
| 7262239 W.O. Cl. I Peter Douglas | 1.2.51 |
| 3767682 W.O. Cl. I James Matthew Burke | 1.2.51 |
| 7262381 S/Sgt. Eric Gordon Richards | 1.2.51 |
| 7262244 W.O. Cl. I Clive Harry Baigent | 16.2.51 |
| 7261685 W.O. Cl. I Arthur William Dodd | 16.2.51 |
| 3767512 W.O. Cl. I William Albert Scriven | 16.2.51 |
| 7261592 W.O. Cl. I Henry Dennis Lamb | 16.2.51 |
| 6550482 W.O. Cl. I William George Tucker | 16.2.51 |
| 7261604 W.O. Cl. I Wells Hanlan | 16.2.51 |
| 813182 W.O. Cl. I Frederick George William Potter | 16.2.51 |
| 7260094 W.O. Cl. I Harry Vincent Thomas | 16.2.51 |
| 5723266 W.O. Cl. I Arthur Jocktan Underwood | 16.2.51 |
| 7261287 W.O. Cl. II Kenneth Mills Lloyd | 16.2.51 |
| 7261540 W.O. Cl. II John Maurice Neal | 16.2.51 |
| 7259089 W.O. Cl. II William Ernest Phillips | 16.2.51 |
| 7259229 W.O. Cl. I Lionel Henry Bryson | 16.2.51 |

(d) To be Capts. (Admin. & Tech.):

Capt. (Qr.-Mr.) Louis Cromb, from Reg. Army Res. of Offrs., 1st Jan. 1951, with seniority 4th Mar. 1950.

Maj. (Qr.-Mr.) Frederick Anthony Thorn, from Emerg. Commn., 1st Jan. 1951, with seniority 13th Jan. 1944, relinquishing the appt. of Q.M.

Maj. (Qr.-Mr.) Edmund Percy, from Emerg. Commn., 1st Jan. 1951, with seniority 6th Mar. 1943, relinquishing the appt. of Q.M.

(e) To be Capt. (Qr.-Mr.):

Capt. (Qr.-Mr.) Merrick Thomas Seymour Bousfield, from Emerg. Commn., 1st Jan. 1951, retaining present seniority.

(f) To be Lieut.:

David Phillips-Miles, M.B.

12.2.51

(g) To be Lts. (Qr.-Mr.):

Lt. (Qr.-Mr.) Sidney Owen Hampson, from Emerg. Commn., 1st Jan. 1951, retaining present seniority.

Lt. (Qr.-Mr.) George Richard Harold Taylor, from Emerg. Commn., 1st Jan. 1951.

(h) To be Lieuts. (Admin. & Tech.):

Lieut. Cyril Creffield, from Reg. Army Res. of Offrs. (Non-Medical Section), to be Lt., 1st Jan. 1951.

Lieut. Victor John Logan from Short Serv. Commn. Type "B" (Non-Medical), 1st Jan. 1951, retaining present seniority.

Lieut. Ronald Stanley Alker, from Emerg. Commn., 1st Jan. 1951, retaining present seniority.

Lieut. Bert Walter Tubby, from Emerg. Commn. (Non-Medical Section), 1st Jan. 1951, retaining present seniority.

Lieut. Christopher Herbert Dennis, from Reg. Army Res. of Offrs. (Non-Medical Section), 1st Jan. 1951, with seniority 29th June 1948.

(i) To be 2/Lts. (Admin. & Tech.):

7261470 W.O. I Patrick Sheehan 16.2.51

7262064 W.O. I Gordon Murray 16.2.51

7262224 W.O. I Wilbur Wynne McFarland 16.2.51

7262224 W.O. II James Sloan 16.2.51

RETIREMENTS

R.A.M.C.

Col. R. S. Dickie, M.B. 5.3.51

Maj. (Qr.-Mr.) A. Steer, M.M. (on account of disability) 28.3.51

APPOINTMENT—COMMANDS AND STAFF

Maj.-Gen. J. Wren, F.D.S., late R.A.D.C., is appointed Director of Army Dental Services, vice Maj.-Gen. H. J. Higgins, C.B., O.B.E., F.D.S., K.H.D.S., 5th Mar. 1951,

Obituary

Lieut.-Colonel JOHN VALENTINE SALVAGE

ON April 5, 1951, Lieut.-Colonel John Valentine Salvage, M.D., R.A.M.C. Retired. Born in Mynyddyslwyn, Wales, June 20, 1858, he took the L.R.C.P. and M.R.C.S. in 1884, and the M.D.Durham (Gold Medal) in 1886. He took the D.P.H.Durham the same year.

He was appointed Surgeon July 28, 1886. Promoted Major R.A.M.C. July 28, 1898, and Lieut.-Colonel July 28, 1906, he retired May 15, 1912.

He was re-employed from December 12, 1914, to May 4, 1919, being twice brought to notice for valuable services rendered in connexion with the war—communique September 18, 1917, and list published December 24, 1917.

He had no war service. Age at death 92.

J. G. F.

Lieut.-Colonel RALPH FRANKLAND MORRIS FAWCETT

IN Boddington, Beds, on April 6, 1951, Lieut.-Colonel Ralph Frankland Morris Fawcett, D.S.O., J.P., R.A.M.C. Retired.

Son of Colonel Morris James Fawcett, the Royal Fusiliers, he was born in Whitehaven, October 2, 1873.

Having taken the M.D.McGill in 1899, the L.R.C.P., L.R.C.S.Ed., and the L.R.F.P.S.Glasgow, in 1900, he was commissioned Lieutenant R.A.M.C. November 29 the same year.

He was promoted Captain, November 29, 1903, and Major, November 29, 1912, he retired with the rank of Lieut.-Colonel December 12, 1919.

He took part in the operations in the Transvaal in 1901 and 1902, receiving the Queen's Medal with four Clasps.

He served in France from September 18, 1914, for three periods up to April 12, 1919.

He took part in the Retreat from Mons, action at la Cateau, retreat to Paris, battles of Marne and Aisne; actions near la Bassée October 1914. Ypres 1915.

Twice mentioned in despatches he was created D.S.O. and awarded the 1914 Star and Clasp, the British War and Victory Medals.

J. G. F.

Lieut.-Colonel HENRY PERCIVAL HART

IN Ottery St. Mary, Devon, on April 8, 1951, Lieut.-Colonel Henry Percival Hart, *M.C.*, *M.B.*, *R.A.M.C.* Retired. Born November 22, 1880, he took the *M.B.Dublin* in 1907 and was appointed Lieut. *R.A.M.C.* July 29 the same year.

He was promoted Captain January 29, 1911, Major July 29, 1919, and Lieut.-Colonel October 25, 1931, he retired November 22, 1935, and three days later took up the Retired Pay appointment at the Nelson Barracks, Norwich, which he held till April 30, 1945.

He served in France from October 12, 1914, till December 27, 1915, and in Mesopotamia January 29, 1916, till September 20, 1918.

He was awarded the *M.C.* for conspicuous gallantry and devotion to duty, when, although himself wounded, he went out, dressed and brought into safety the wounded under heavy shell fire—*L.G.*, May 31, 1916.

He also received the 1914 Star and Clasp, the British War and Victory Medals.

J. G. F.

Lieut.-Colonel ROBERT FRANCIS BRIDGES

IN Appleford, Berks, on March 29, 1951, Lieut.-Colonel Robert Francis Bridges, *R.A.M.C.*, *M.B.* Retired. Born July 25, 1883, he took the *M.B.Oxon* in 1910 and was commissioned Lieutenant *R.A.M.C.*, winning the de Chaumont Prize July 29 the same year.

Promoted Captain January 29, 1914, Major July 29, 1922, and Lieut.-Colonel May 1, 1934, he retired December 10, 1937.

He won the Alexander Memorial Prize in 1936.

In 1914–18 he took part in the operations against Mohmands and Swatis, receiving the 1914–15 Star, British War and Victory Medals. He again saw service in the third Afghan War, receiving the medal with Clasp and in the operations in Waziristan 1921–24 being awarded a clasp to the Afghan Medal.

J. G. F.

Colonel EUGENE RYAN

IN Cork on April 11, 1951, Colonel Eugene Ryan, *C.M.G.*, *D.S.O.* Born September 29, 1873, he was educated at Queen's College, Cork, and Edinburgh University, and took the *L.R.C.P.* and *L.R.C.S.Edinburgh* and *L.R.F.P.S.Glasgow*, in 1898.

Having served as a Civil Surgeon September 6, to December 2, 1900, he was appointed Lieutenant *R.A.M.C.* January 29, 1901.

Promoted Captain January 29, 1904, Major January 29, 1913, Brevet Lieut.-Colonel January 1917, Lieut.-Colonel March 9, 1923, and Brevet Colonel February 18, 1926, he retired September 29, 1930.

He was an Honorary Surgeon to the Viceroy of India April 3, 1921, to February 15, 1925, and an Honorary Physician to the King from February 18, 1926, till he retired.

After retiring he was Recruiting Medical Officer, London Recruiting Depot, August 13, 1927, to September 28, 1938.

He took part in the operations in Cape Colony, Orange River Colony and Transvaal in 1901 and 1902, receiving the Queen's Medal with five Clasps.

He served in France from August 13, 1914, to May 5, 1919, being appointed Surgeon to the C. in C. (Lord Haig) from whom he received a photograph (now in the H.Q. Mess and Millbank) autographed "To/Mickie Ryan with heartfelt gratitude for what he has done to keep myself and staff fit from the date of mobilization to the end! D. Haig, F.M. Xmas 1918."

Seven times mentioned in despatches, he received the Brevet of Lieut.-Colonel, was created *C.M.G.*, *D.S.O.*, Chevalier Legion d'Honneur and Commander of the Order of the Crown of Roumania. He received the Medaille de la Reconnaissance Francais en Argent, the 1914 Star, British War and Victory Medals.

J. G. F.

Book Reviews

HEALTH AND HUMAN RELATIONS IN GERMANY. Report of a Conference convened by the Josiah Macy, Jr. Foundation, with the co-operation of The Children's Bureau and the National Institute of Mental Health (U.S. Public Health Service), and with the full approval of the Department of State. June 26-30, 1950. World Federation for Mental Health, 19, Manchester Street, London, W.1. Price 5s.

The Josiah Macy Foundation convened this conference. Its members were workers (Governmental and Voluntary) in such fields as psychiatry, psychology, sociology and education who had experience of conditions in Western Germany. The majority were Americans with a scattering of French and Germans, whilst Dr. Rees and Professor Simey represented Great Britain. It was, in fact, Dr. J. R. Rees, Director of the World Federation of Mental Health and Consulting Psychiatrist to the Army, who, during a visit to the United States in 1949, suggested the calling of such a conference.

The report is not easy reading. The fact that abstract ideas, dealing with reactions and attitudes, are being conveyed, involves a certain amount of circumlocution. The language is necessarily that of any meeting of psychologists and sociologists, whose enthusiasm enables them to breathe easily in the peculiarly rarefied atmosphere of the intellectual concerned with broad sociological trends and concepts. The individual reader, untrained in this "discipline" (as the report would put it) cannot help, at times, harbouring the feeling that, there may be something to be said for basic English.

Having noted this difficulty, the report itself is obviously of great value both because of the picture it presents of current conditions in Western Germany

and because of the stimulus it provides to self-examination on the part of the occupying nationalities and the suggestions it puts forward for constructive action.

Problems were faced frankly. The Americans admitted that, in their enthusiasm to bring about better conditions, they may have been rather too hasty and have made insufficient allowance for the possible German reaction that the American aim was to "force, cajole and propagandize" the Germans into an American way of life.

They have, however, learnt from experience and the emphasis is now entirely on the co-operation of equals and the exchange of experts. It is realized that German culture has something to offer as well as Western culture and that the German social soil is not always suitable for the transplantation and subsequent development of American attitudes and methods.

The Conference divided itself into three committees to consider the three following aspects of the problem:

- (1) German culture and personality.
- (2) Professional developments in psychiatry, social science and education.
- (3) Integration of the German culture within itself and into European and world cultures.

This was a logical plan. The first report deals with the evolution of the authoritarian pattern in Germany which permitted the acceptance of Hitler and his regime: the second with the study and development of existing social services (using the expression in its most comprehensive sense) for the purpose of securing the fullest integration of Germany and the rest of the world: the third report discussed the problems inherent in this process of integration.

The report must be read for a knowledge of the many problems raised and the many practical procedures suggested. One is left with the impression that this "serviceable co-ordination of multi-professional thinking and planning" (in the language of the report) has taken place none too soon, if only from the point of view of the thinkers and planners adopting those methods most likely to secure German co-operation without arousing an antagonism which might defeat the very ends for which they are striving.

This urgency is stressed by the criticism of the report of Committee 1 by a group of German leaders at a second Conference on health and human relations six months later. This German group felt that "statements about German character structure appearing on pages 49 to 54 of the report would be questioned by many Germans and would create a prejudice against the total report which might seriously affect its usefulness in Germany."

A general recommendation of Committee 3 will probably receive universal approbation. It is that suspicion among delegates to such bodies as the United Nations, caused by misunderstanding of motives, would be diminished by the routine inclusion of experts in human relations in those delegations.

L. C. F. C.

BAILLIÈRE'S NURSES' MEDICAL DICTIONARY. Revised by Margaret E. Hitch, S.R.N. 1950. London: Baillière, Tindall and Cox. Pp. 496. Price 5s.

That a twelfth edition of this reasonably priced, pocket-size dictionary should have been called for is testimony to its popularity, and although, especially in the appendices, it contains much that is good, there remain too many errors and inconsistencies for us to recommend it.

A dictionary is not primarily a textbook, but a work of reference on orthography and diction, and in this one mistakes abound: *segma bacillus* (pp. 32 and 281), *hydronephrosis* (p. 171), *dipotre* (p. 88). Eponyms suffer grievously: *Bordet-Gengon* (p. 32); *Zondek-Ascheim* (p. 351); *Sim's speculum* (p. 366); while *exophthalmic goitre* is *Graves'* (p. 135), *Grave's* (p. 294) and *Graves's* (p. 90). "*Fallopian*" has a capital initial (p. 328) and a small one (pp. 114 and 248) and "*Eustachian*" fares similarly. For information on *schistosomiasis* the reader is referred (p. 278) to *bilharziasis*, but she will find it (p. 39) under *bilharziosis*. The recommended pronunciation of "*Unna*" is "*un'-ner*," and no distinction is made between long and short vowels.

These are examples only, which are not calculated to help the student nurse and the Civil Defence auxiliary to spell and speak correctly. The book is even less acceptable to our sister Corps from its repeated (Appendices XIX and XX) references to it as "*Queen Alexandra's Imperial Nursing Corps*."

Binding, paper and printing are good, irrespective of the low price, but must advertising matter be sandwiched in the text?

J. B. N.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library:

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health & Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. Internationale de Services de Sante, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Sante Militaire, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette.

CORRIGENDA

Vol. XCVI, No. 2, January 1951

Page 30. Line 8. The sentence commencing "It is well recognized . . ." *should read* as follows:

"It is well recognized that all physical diseases have their psychological aspects, so that the need for treating the whole individual, and not merely his disease, is stressed."

Page 57. Line 10.

for Franks read Frank.

Page 57. Line 5.

for 1911 read 1811.

Notices

THE ROYAL SANITARY INSTITUTE

COLWYN BAY SESSIONAL MEETING, Friday, July 6, 1951, at 10 a.m. in the Town Hall, Colwyn Bay. Papers on "Co-operation Between the Various Services—Hospital Board and Local Authorities—in the Promotion of Health," by Dr. D. J. A. Alban Jones, Administrative Medical Officer for Welsh Regional Hospital Board (North Wales Area), and "The Prevention of Food Poisoning," by Dr. D. E. Parry Pritchard, County Medical Officer, Caernarvonshire. Afternoon: Visit to J. K. Smit and Sons, diamond tools.

BEVERLEY SESSIONAL MEETING, Thursday, July 12, 1951, at 10 a.m. in the Art Gallery, Beverley Library. Papers on "Human Problems in the Tanning Industry," by Dr. E. H. Thierry, Industrial Medical Officer, and "Contagious Diseases in Animals," by P. D. Dunn, M.R.C.V.S., F.Z.S., Veterinary Surgeon, Beverley. Afternoon: Visits to the tannery of Richard Hodgson & Sons and Beverley Minster.

CONFERENCE ON THE REPORT OF THE CATERING TRADE WORKING PARTY ON HYGIENE IN CATERING ESTABLISHMENTS
to be held at the Royal Sanitary Institute, 90, Buckingham Palace Road,
London, S.W.1, on Wednesday, July 18, 1951.

11 a.m.

- (1) Address by Sir William Savage, M.D., D.P.H., Chairman of the Catering Trade Working Party, on the aims and recommendations of the Report.
- (2) Paper by Professor G. S. Wilson, M.D., F.R.C.P., D.P.H., Director, Public Health Laboratory Service.

2 p.m.

- (3) Paper by Captain Kenneth C. McCallum, M.C., Managing Director of Trust Houses Ltd.
- (4) Paper by Dr. W. R. Martine, O.B.E., T.D., Senior Assistant Medical Officer of Health, Birmingham.
- (5) General discussion.

Chairman:

SIR WELDON DALRYMPLE-CHAMPNEYS, Bt., M.A., D.M., F.R.C.P.

THE SCOTTISH LION ON PATROL
being the story of
15TH SCOTTISH RECONNAISSANCE REGIMENT
1943-1946

ON behalf of Colonel J. A. Grant Peterkin, D.S.O., our first Commanding Officer and President of our Old Comrades' Association, I am writing to let you know that the book telling the story of the 15th Scottish Reconnaissance Regiment is now available. It is entitled "The Scottish Lion On Patrol," and may be obtained (price 15s.) from M. R. Riesco, 70, Coombe Road, Croydon, Surrey.

The text, illustrated with photographs and maps, covers the Regiment's antecedents; its formation in 1943; its days in Northumberland, Yorkshire and Sussex; the part it played in the battles of France, Belgium, Holland and Germany; and the many duties which it undertook as part of the British Army of the Rhine until the Regiment was disbanded in 1946. Many of those who fought in the Regiment have written of their experiences.

In his foreword Colonel Grant Peterkin says that the book is "the simple story of a very happy family . . . it will refresh the many pleasant associations and friendships within both Regiment and (15th Scottish) Division and with many members of Second Army with whom we had the honour to work." These included The 6th Guards Tank Brigade, the 6th Airborne Division and The Special Air Service.

70, Coombe Road,
 Croydon, Surrey.

M. R. RIESCO,
Hon. Secretary, Regimental Association.

A FESTIVAL LIFEBOAT AT THE SOUTH BANK EXHIBITION

A MODERN British motor lifeboat is one of the principal exhibits in the Seaside Section.

This lifeboat is one of the most up-to-date types, named after the Chairman of the Royal National Lifeboat Institution, "Sir Godfrey Baring, Bart." She is 46 ft. 9 in. long, weighs over 22 tons, and is capable of carrying nearly 100 people in rough weather and at full speed. Her hull is divided into 9 watertight compartments, and her engine-room equipped with two twin-screw 40 h.p. Diesel engines, is also watertight; the exhaust fumes are carried away up the mast.

She is equipped with a radio-telephone, a loud-hailer, a line-throwing pistol and an oil-spray to make the seas smooth round a wreck. Her propellers are protected by tunnels, and, if they become fouled, can easily be cleared through special scuttles on the deck.

At the Exhibition, there is a District Inspector of Lifeboats on duty, an ex-naval officer, and the boat is manned by a coxswain, who represents the crew, and a mechanic, to explain the engine.

This boat is afterwards destined for the Humber station at Spurn Head, where it will proceed at the close of the Exhibition.

Great Britain was the pioneer nation in the world's history of lifeboat services. Her first lifeboat was launched in 1786; her national service, the R.N.L.I., was inaugurated in 1824; and to date that service has been responsible for the saving of over 77,000 lives, an average of 50 a month.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s. payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, R.A.M. College, Millbank, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—

ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

STUB INDEX
V. 97

July 1951

No. 1

Vol. XCVII

23
Journal

OF

THE

Royal Army Medical Corps

ISSUED

MONTHLY



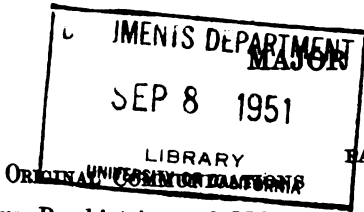
EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS



the Army Psychiatrist and Military
Law. By SYDNEY SHARMAN, M.B.,
Ch.B., D.P.M., R.A.M.C... .. 1

poliomyelitis in England and Wales
(A Chadwick Public Lecture Given
on February 20, 1951). By Brigadier
A. E. RICHMOND, C.B.E., M.R.C.S.,
L.R.C.P., D.P.H., D.T.M., R.A.M.C.
(Retd.) 15

anesthetist's Safety Tray for Syringes.
By Lieut.-Colonel KEITH F.
STEPHENS, M.B., B.S., D.A.,
R.A.M.C. 34

A.O.R. Medicine 1946-1949. By
Brigadier F. J. O'MEARA, M.A.,
M.D., F.R.C.P.I., D.T.M.&H.,
Late R.A.M.C. 37

	PAGE
Cavalry Surgeon. By Major J. B. NEAL, R.A.M.C.	45

AT RANDOM

Prickly Heat. Miliaria Rubra. Lichen Tropicus	54
---	----

TRAVEL AND HISTORY	57
--------------------------	----

CORRESPONDENCE	60
----------------------	----

MATTERS OF INTEREST.. ..	64
--------------------------	----

OBITUARY	73
----------------	----

NOTICES	75
---------------	----



S T A P L E S P R E S S

STAPLES PRESS LIMITED STAPLES PRESS INCORPORATED
Mandeville Place, London 70 East 45th Street, New York

Price Three Shillings and Sixpence net

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET • LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : " Instruments, Wesdo, London "

When writing advertisers please mention "Journal of the R.A.M.C."

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

THE ARMY PSYCHIATRIST AND MILITARY LAW

BY

SYDNEY SHARMAN, M.B., Ch.B., D.P.M.

*Civilian Specialist in Psychiatry to the Army,
formerly Major, Royal Army Medical Corps*

THE LAW

ORGANIZED society cannot exist without law. Within societies the army is a special organization in which special problems may arise. As a result, the soldier finds himself subject to both Civil and Military Law.

At the present time it is a common practice in the Army for a soldier, accused of some offence, to be referred to a psychiatrist for the latter's professional opinion about the accused man. It is necessary, however, to appreciate that the consideration of mental factors is not a new thing in law. A study of books on Jurisprudence will show over and over again such phrases as the following—"of malice aforethought," "with intent to defraud," "deliberately," "with purpose," "knowingly," "under severe provocation" and many others. The Law has for a very long time recognized that the same action under different circumstances, or by different types of people, may be regarded in differing ways or with differing degrees of severity. The result is expressed in the varied sentences imposed, or the varied disposals ordered, after the guilt has been established.

Modern psychology has permeated most fields of thought and action including the administration of Law and Order. In the Army, varied A.C.I.'s demonstrate conclusively that the military world has kept pace with these changes or advances.

THE PSYCHIATRIST

The Army psychiatrist is called upon to express his opinion about the mental state and psychological health of an accused person, and to indicate

his views about the man's personality. It is necessary for him to be quite clear in his own mind exactly where he stands in the matter. He must school himself to be as objective as is humanly possible. He owes a duty to the Army and to society in general, and he also owes a duty as a doctor to be as understanding and compassionate to the individual as is reasonable.

What are the possible pitfalls which he must negotiate? Firstly, there is the tendency, especially in the young doctor-soldier, to "outmilitarize the military," to over-identify himself with aggressive disciplinarianism, and hence to approach the case with a mind prejudiced against the wrong-doer. Secondly, there is the tendency, after listening to the accused, to accept too readily and easily his account of his life-history, his "raw deals" before he enlisted in the army, and the unfortunate sequel of events including victimization, neglect, bullying, lack of consideration and so on. These trends, which we must all guard against, are conscious; we are aware of them and on the whole, they should not constitute a real danger to a psychiatrist with some experience of life and people. The major problem lies in the psychiatrist's own personality and in the inner workings of his own emotional drives and mental mechanisms. When he has completed his examination, he has built up a picture and created a pattern, and he derives from this activity some measure of self-satisfaction. This pleasurable emotional-tone by the very nature of its production may tend to include the examinee, and as a result, may produce an exaggerated compassion with him and an urge to protect him. The vital point to remember, as in many other aspects of the Army psychiatrist's duties, is to distinguish between the understanding of the forces which have resulted in the formation of a particular personality, and the assessment of that personality in its total functioning in real life. There is a psychology of the Conscious as well as a psychology of the Unconscious.

The difficulty is all the greater if the psychiatrist is a man who is imbued with a crusading spirit: for example, on behalf of all weaker vessels against the authorities who appear to oppress them. It is not necessary here to describe the different ways in which the psychiatrist himself has grown up to become a rebel, an emancipator, a reformer, or an authoritarian; to be ultra-religious or anti-religious, to be dogmatic about the infallibility of his own assertions or to be excessively humble about his own doubts and uncertainties.

It is necessary to emphasize that the examination of an accused person prior to his trial is not the right time for the psychiatrist to indulge in his own crusades, philosophies or caprices however correct or laudable they may be. Nor is the court room a suitable place in which to plead pet theories, personal views or ideas, e.g. that psychiatrists alone should determine how society should deal with anti-social behaviour.

In the past ten years the author has had a great deal of experience of courts and contact with those who dispense justice. The surprising thing is not how backward and obstinate are the professional and amateur judges, but how modern and flexible are the vast majority. If the psychiatrist feels

that he wants to help a particular case as much as possible he will find that he will achieve more if he confines himself to a clear expression of his professional opinion, without attempting to show too great advocacy of any special action to be taken, and without appearing to tell the Court how to act.

GUILT

In a few cases the psychiatrist is asked to see an offender after a verdict of guilty has been pronounced, and in such cases his functions are usually clearly defined and these cases should not present much difficulty. In nearly all cases, however, the examinee is in law an innocent person at the time of the examination and the psychiatrist is not, and should not, attempt to be an amateur K.C. Trying to trap the accused into some form of admission of guilt is bad practice and is unethical. After all, the prosecution exist to try by legally authorized means to prove his guilt. Suggesting things which the man might use in his defence is equally to be avoided. After all, the defence exist to try by legally authorized means to maintain his innocence.

To many psychiatrists the problem of guilt goes much deeper than the legal determination. "There is no doubt in my mind that the man committed the act but he was not really to blame, because . . ." This problem of blame is one which it is impossible to settle finally. To know all is to understand all, and to understand all is to forgive all . . . this is a very fine sentiment, but it is irrelevant to the matter in hand. What may be relevant in this connexion is (a) the diagnosis of Psychopathy, or (b) the question of lowered capacity to resist temptations, impulses, or to exert self-control.

(a) As regards the former, there are some psychiatrists who label all sorts and conditions of people as psychopaths, there are some who confine the label to special categories of people, and there are some who refuse to recognize the term at all. In a matter in which there is no definite agreement within our branch of medicine, it is wise to be chary of using the term Psychopath when reporting on disciplinary cases. If the term is used, it is necessary to indicate in plain English just what is meant by the term in the particular case. There is a tendency these days to use the term not as a clinical description only but with an emotional concomitant—to use it as a term of reproach or even contempt under one circumstance, and as a plea in others. "This poor psychopath cannot help himself." This may be true but it is important to state clearly and exactly what one has found out about the case, what one thinks about his mentality and personality, without letting the idea of his being a "poor psychopath" flavour the report. It is very easy to become sorry for the meek psychopath, and even easier to become too harsh on the aggressive psychopath. The psychiatrist, if he recognizes the concept of psychopathy at all (as I do), must school himself to be equally objective with both types while engaged on this special task.

(b) As regards the question of being "less able than the normal average person to exercise control . . ." it is not sufficient merely to say that because a

man has a cyclothymic or schizoid or hysteroid type of personality therefore he is "less able . . .", or that because he is suffering from a chronic or an acute anxiety state he is "less able . . .", or because he is of low intelligence he is "less able. . . ." What is the normal average man's capacity to resist temptation, to control himself so as to avoid illegal actions, to overcome impulses? I believe that this will vary with the circumstances, both internal and external, in the case of the normal average healthy man, and that it will vary also with the psychopath, the hysteric, and the dullard. On the other hand, one must beware of assuming that because some action has all the hallmarks of long planning, that this necessarily determines normality. A man who is clinically and legally of unsound mind by virtue of his fixed and systematized delusions may resist all immediate impulses which might prevent the success of his long-term strategy, e.g. to kill a particular person. He could be correctly diagnosed as being much less able than the normal healthy person to control or abandon his urge to commit an offence. Although this is an extreme example, it illustrates a problem which more frequently arises in a minor key in the case of the mildly paranoid-psychopathic type who, while blaming all the world for everything, pleads that "he could not help it" although his actions betray a good deal of clever calculation.

In Law, the McNaughton rules still apply but the courts are more and more taking into account the problem of emotional drives, impulses, complexes, and personality defects. To the lawyer, the decision about a "defect of reason" may be a plain straightforward matter which a specialist should answer easily and quickly with a yea or nay. To the modern psychiatrist whose thoughts and ideas are influenced by modern dynamic psychology, the matter is infinitely more complicated. To him Reason is not a Thing which is there or not, is normal or abnormal, is healthy or diseased. It is a function of a total personality. Pure objective reasoning is rare at the best of times, and most actions which are claimed to be due to reason can, on analysis, be shown to be due to emotionally-determined patterns of thought which are rationalized and elevated to the dignity of Reason.

If the psychiatrist has strong personal views on this subject, there are channels through which he can express them and help to modernize the law if that is his aim. When dealing with cases as an army psychiatrist within the framework of the present system, he should confine himself to a clear statement on this controversial subject. For example one could write something after the following pattern: "As a result of studying this man's background, upbringing and development, and in view of all the factors associated with the alleged offence, I am of the opinion that at the time of the occurrence he did know what he was doing and that he did know that it was a wrong thing to do. But at the time he was so disturbed that he did not care about its nature or quality, and was not concerned about that aspect of things. The emotional forces at work were exceedingly powerful for a man of his mental make-up to resist."

PUNISHMENT

This is an even more thorny subject. There are some psychiatrists who regard any form of punishment as barbaric, sadistic, ineffective, or only instrumental in making people worse. There are some psychiatrists who believe that because they practise as psychiatrists, they ought to support the above attitude. There are some who abhor physical punishment utterly but accept the value of non-physical punishment, although this may cause more actual suffering to the recipient. There are some who are totally opposed to it when it implies Revenge, but not otherwise, without clearly indicating how, when and where one can draw a distinction. Psychoanalysis of all the personnel who take an active part in judicial affairs is clearly impractical, even if it were justifiable, beneficial or sensible. The real practical control of excessive punishment motivated by Revenge is Publicity and Public Opinion.

The vast majority of persons, who, having been found guilty of some offence, are punished by a fine or a term of imprisonment are not recidivists; therefore one cannot say that punishment INEVITABLY makes future criminals. This applies to not a few convicted of sexual offences also. It would appear to be as unwise to generalize about punishment as to generalize about anything else.

It is not within the province of the psychiatrist's duties to tell the court what punishment should be administered, but it may definitely be his responsibility to advise the court what effect certain punishment may have in his opinion. In such a case, one should state WHY this view is taken in the particular case, e.g. a case of recurrent (psychotic) depression with a history of a previous breakdown having been precipitated by a period of imprisonment.

Suggestions of a lighter punishment because the man is a "poor psychopath" who "can't help himself," or because he cannot control his sexual-deviation impulses, are not part of the psychiatrist's duties. To tell the court that the accused is much more likely than the average person to commit and to repeat the offence, or indeed is almost bound to do so, and at the same time ask the court to release him all the sooner does suggest a lack of logic from the point of view of the community. Treatment might well be the answer, but where? Is the man to be free while having a course of treatment which may take a very long time? On the other hand, can treatment be fully effective when the man feels himself compelled to be treated by an agent of the authorities who have imprisoned him? Some day, I have no doubt, there will be places provided in which to deal comprehensively with special cases, but they do not exist at present. The authorities, who are by no means unenlightened on these subjects, have to decide what to do with a case in the light of present-day realities. They can be helped to arrive at a decision if the psychiatrist confines himself to putting before them a clear and simple picture of the man.

EXAMINATION OF AN ACCUSED PERSON

(a) *General*.—If the examinee raises the question, he should be told quite clearly and simply that the psychiatrist is not *ON* his side, nor *AGAINST* him. The examination should be conducted on that basis and so that it would appear to the average person to be so.

It is sometimes necessary to indicate that one does not accept certain statements which the man makes. This should be done without being aggressive or condemnatory.

Deliberately angering the man in order to test his reactions is a dubious procedure.

A certain degree of tension or anxiety is to be expected in many cases simply because the man is in trouble and is worried about the outcome of his situation. This reactive anxiety, if described in the report, should be explained for what it is and not used as an indication of any basic defect of personality, unless it is manifestly excessive and abnormal. In some cases, indifference about his position may be of greater psychiatric import than some overt distress.

Notes should be made at the time, and it is right that the man should see that this is happening. In other types of consultation, the psychiatrist may prefer not to make notes, but for this special purpose it is wiser to do so. On the other hand it is unnecessary and indeed inhibiting to a marked degree to have a third person in the room, especially a clerk or secretary silently writing. The author makes a practice of writing aloud, so that the man knows just what is being written down, and sometimes he offers an alteration or afterthought. He is then obviously gratified when one takes notice of it and he feels that he is not being tricked in any way and is usually more forthcoming as a result.

The notes can be in any form which the examiner has found most suitable for himself, but should have some system and basic plan. A useful procedure is to write down some actual phrases and sentences which the man has said, and which the psychiatrist considers to have some significance.

It is advisable to obtain as much information about the accused as possible from any available source. In the army it is clearly laid down that certain documents shall be provided. These should be carefully studied and it is good practice to copy some extracts from these into one's notes. Comparison between them and the accused's statements are often valuable. For example: His officer reports that the man is efficient at his job and the man is confident that he is efficient in his job as compared with the report that he is efficient at his job while the man states that he cannot do his job at all. Conversely, compare the situation in which the report indicates that the man is totally inefficient, and the man admits that he is not up to his job at all, with the situation in which the report indicates that he is totally inefficient while the man asserts that he is doing his work very well.

The notes which one makes should be kept, and filed with a copy of the official report.

If one has to attend court to give evidence, the notes should be taken along as they are often of more value than the final polished report, especially if the psychiatrist finds himself under strong cross-examination.

The truth of statements made by the accused to the psychiatrist may sometimes be difficult, or even impossible, to assess. This applies often to accusations which he makes against other people, e.g. his corporal, his serjeant, his officer and so on. Sometimes it is quite obvious that the man has ideas of persecution, sometimes he is just a chronic grouser who cannot or will not face up to his own blameworthiness for anything, but sometimes he does impress with his full and detailed account of how he has been "victimized" and with the way he gives his story. The psychiatrist should not accept this sort of statement without real independent verification, nor, on the other hand, should he ignore it if he feels there may be something in it. His wisest procedure is to include a reference to the matter in his report beginning with: "The man states . . ." and ending with "I have no evidence on the matter and can offer no comment."

When examining a man who has received repeated sentences in the past, it is useful to find out the man's reactions to them. How much does he blame or pity himself, how much does he vaunt his incorrigibility; is he (strange as it may seem) more at ease in himself in prison than when free; what was his longest period of freedom from crime and why; was he ever given a "second chance"; and has he ever had any real friends among the law-abiding members of the community after his first sentence and so on?

It is sometimes difficult for the psychiatrist to make up his mind about a case. When he finds himself uncertain and doubtful, when he feels he has "lost grip," it is usually unwise to prolong the interview *ad infinitum* in the hope of arriving at a decision which will really satisfy him. It is much better to arrange for a second examination so as to approach the case with a fresh mind. He can then also go over a good deal of ground again, comparing responses and reactions. No psychiatrist is infallible, the dangers of a "spot" or rushed diagnosis apply as much to psychiatry as to other branches of medicine, and he should not hesitate to say that he cannot make up his mind and wishes to examine the man again. Alternatively, where practicable, one can have the man seen by a colleague. Occasionally in really difficult cases one can have the man admitted to hospital for full and proper observation and investigation.

While it is true that a satisfactory examination produces a positive feeling-tone in the examiner with its possible tendency towards exaggerated compassion with the examinee, it is equally true that an examination incomplete for any reason may produce a negative feeling-tone with its possible tendency towards aggression against the accused. The latter is usually during the examination of an innocent person: he is entitled to a full measure of fair treat-

ment, and anything which might (even in the unconscious mechanisms of the examiner) militate against this must be countered. Hence the advisability of a second interview, the reference to a colleague, or the admission into hospital in some selected cases.

(b) *Specific* (in relation to the charge).—When the psychiatrist is requested to examine a man prior to a court martial, the nature of the charge may be of special significance, e.g. sexual offences as compared with A.W.O.L.¹ It is important to remember, however, that the psychiatrist's task is fundamentally the same whether the accused faces a possible sentence of fifty-six days' detention or fifteen years' imprisonment. He has to make up his mind how to answer certain questions, not so much in relation to offences as about the intelligence, character, personality and state of mental health of an individual who is accused of such an offence. Yet from the point of view of psychiatry the nature of the charge may have very important and significant indications about the accused as a person. Some of these more common charges may now be considered. It is proposed to deal with: I, A.W.O.L.; II, Sexual Offences; III, Acts of Violence.

I. *A.W.O.L.* The psychiatrist is asked for his opinion in such cases chiefly on account of (1) dullness, (2) amnesia, or (3) psychopathy.

(1) If a man has been in the Army and has been doing his work and living his life satisfactorily, it is difficult to see how his dullness *per se* can be an EXPLANATION of his lapse. An important point under this heading is the degree of dullness relative to the type of work which he is directed to do. With modern selection methods and the good management which generally exists, clear disparity between the man's abilities and his duties are becoming much less frequent. It does occur, however, and the psychiatrist is then entitled to point out the stresses involved and their probable effects. Dullness to a degree which makes the man unable to appreciate the nature of his actions is rare, but dull and backward persons are less likely and less able to weigh the consequences of an action than their more intelligent colleagues. The dullard is apt "to talk a lot of nonsense" in his defence at the interview, but the psychiatrist must not let himself be influenced against him on that account and he should, of all people, be able to make allowances, or in other words, understand that the dull person is a dull person. The dull accused, who appears to be trying to make himself out to be even duller than he is at such an examination, is a not uncommon case, as this is one of the characteristic defence mechanisms of many dull people when they feel threatened by retribution. In this connexion also, one may come across the "Ganser Syndrome."

(2) The majority of soldiers who plead amnesia when accused of A.W.O.L. have not suffered from any true amnesia. The commonest pattern is that shown by a dullard with mild hysterical trends who knew perfectly well what he was doing but who, after a day or two, gets very worked up about his situation and who almosts talks himself into believing that "something came over him" and

¹Absent with-out leave.

that he does not know anything more about it. In such cases, there is no need for "clever" cross examination or for aggressive attack by the psychiatrist in order to obtain a clear picture. "What was he doing just before he went absent? Where did he go? How did he travel? What money did he have with him? Did he go home? If he did not know what he was, how did he know where to go? What did he say to his family? If he did not know who he was, how did he know his mother? If he did not go home, where did he sleep, what about meals, earning money, the name people called him?" A possible complication is the case where, some days after the deliberate absenteeism, amnesia develops as a result of the intense conflict between the fear of going back and the fear of not going back.

True amnesia is not usually difficult to diagnose. Sometimes an important point to determine is the patient's reaction and attitude to the fact that he has suffered from this disorder. The man who exhibits anxiety about the occurrence must be distinguished from the man who exhibits "belle indifference" about it, and in turn both must be distinguished from the man who is overtly proud of it and at the same time appears to relish the idea that this happening excuses any offence with which he may be charged. The first, especially if he is more alarmed about the amnesia than the "charge" is probably genuine; the second hysteric, and the third falls anywhere along the line from hysteria, hysteria cum conscious stimulation, to pure malingering. In the last-named group of cases, it is sometimes useful and justifiable to ask the man whether he realizes just what may be involved by his claim that he has "attacks" or "fits" or "black-outs" during which he commits illegal acts for which he therefore maintains he is not responsible. On not a few occasions the author has found that this procedure, carried out in a non-committal tone, or indeed in a solicitous manner on the man's behalf, has resulted in his withdrawing his story completely.

In certain cases, narco-analysis may be useful, but it is important to remember that this is a medical procedure to help the doctor arrive at his diagnosis, and that information obtained under the influence of any "truth drugs" cannot be used as evidence and should not be used for that purpose.

In all cases examined prior to a court martial the psychiatrist should, if he decides to employ drugs, explain to the man what is to be done, and obtain his signature to a statement of consent.

(3) Is the man emotionally unstable? Is he unable to tolerate discipline, and, if so, just exactly what does one mean by this assertion? Is he always actuated by sudden whims and caprices, or is there any evidence that he can control these if and when it is to his advantage to do so? Does he evince any concern for others, or on the other hand does he impress with the "crocodile tears" which accompany his protestations of committing the offence for the sake of someone else? Is his life record one of repeated trouble for which he is never at fault? Does he show any signs of possessing any social sense, any sense of loyalty, or responsibility to others, or of duty? Even when one finds

evidence that his record and attitude betray the poorly adjusted personality, was he able to control himself, or choose his action, or was he so much in the grip of his emotions that in fact he had no real choice?

The determination of this type of case preceding a court action can be one of the most difficult tasks facing the conscientious psychiatrist. The idea of a "bad type" being allowed "to get away with it" is not easy to accept, and the effect upon other soldiers cannot be ignored, yet the psychiatrist-examiner should not allow such feelings to influence his judgment. On the other hand the future of such a personality, aided by a specialist's report to escape the consequences which would be suffered by others for similar actions, may disturb the examiner. Again it must be emphasized that the wisest plan is to concentrate upon the examination and preparing a report which will be of help to the court in deciding appropriate action.

A special problem often arises for the psychiatrist in cases in which the accused whilst under arrest prior to his trial makes a suicide attempt. This occurs most frequently in psychopathic cases charged with A.W.O.L. or desertion, and may therefore be considered here. These cases cause considerable administrative problems in their units. In the army under average circumstances, the unit officers, with or without medical officers available, cannot usually provide the personnel to deal adequately with this situation. When seen by the psychiatrist, usually after some sort of suicidal attempt, the diagnosis is usually straightforward. Psychotic depression with obvious guilt feelings, hysteria, occasionally frank schizophrenia, but most commonly psychopathic personality with hysterical reactions. Occasionally the suicidal attempt has satisfied (and indeed scared) the patient; he feels he has expressed his aggressions, or "played sufficiently to the gallery" and so satisfied his exhibitionist traits, and by the time he is examined there is no real anxiety about a further attempt. But in many cases there may be a lingering doubt in the psychiatrist's mind when he sends such a case back to the guard room, or the M.R.S. under observation, etc. As regards the hysteric cases, it is true that they do not usually really mean to end their lives, but, in my view, quite a high proportion of successful attempts are made by hysterics who did not really mean to make a complete success of the job. For a number of such cases, therefore, it is wiser to have the patient admitted to hospital for observation, and sometimes it is advisable in view of the unit circumstances to do so when clinically the indications are not strong. In doubtful cases I make a practice of 'phoning the Unit M.O. to discuss the matter with him.

Here again, it is important not to be carried away with the feeling that one is pandering to a "bad hat" in helping him achieve his immediate objective, viz. removal from the guard room, etc. In the cases which are only mildly psychopathic or hysterical, who give the impression of merely "trying it on," a modification of the method mentioned previously in this paper is often useful. The accused is told that he is either capable of behaving himself or he is not. If the former, then he will only add to his sentence by committing another offence. If the latter, he is running a grave risk of "being locked up" for a long

time, even if for his own good, if he repeats such actions "while not responsible." It is important whenever adopting this method of dealing with a case, to make it clear above all doubt that one is advising the man, helping him, and pointing out these things for his benefit, and not threatening him. The threat does in fact exist, but it is not of the psychiatrist's making, and the latter is merely taking the trouble to draw the examinee's attention to it.

It is wrong to make a psychotic diagnosis, if the man is not really psychotic, merely in order to justify the recommendation of hospital admission. The reason for the action should be stated frankly.

II. Sexual Offences.—It may be of great interest to a psychiatrist as an academic study to consider the origin, growth and development of Law from the original tabus including incest, and every psychiatrist should be familiar with the works of Sir James Frazer, Malinowski, Mead and others on Social Anthropology. The writings of Freud, Adler and Jung on Oedipus Complex, the Unconscious and the Collective Unconscious should be known. With the welter of writing and publications on these and allied subjects which has poured out in the past half-century in an ever-increasing torrent, no psychiatrist can be familiar with all that has been written and therefore he tends to build up his own concepts and theories from what he has read and experienced in his professional work. A study of any individual accused may provide very interesting material to "prove" some cherished theories of one's own, but the question one has to answer in dealing with a man accused of sexual offence is not whether the man is guilty, or why he is termed guilty in our culture and not in others, but whether there is anything for the psychiatrist to report to the court, which will help the court to understand more fully the personality of the individual before them.

Sexual crimes against children, male or female, appear to produce more emotion than almost any other crime in the calendar. It may be "clever" for the psychiatrist to assume that there are various complexes at work in the minds of the judges, but there may be a tendency to react by overstressing the reasons why the accused should be given all sorts of special consideration for being a victim of his own weakness. It is necessary to remember that modern courts are usually prepared to take full note of anything said by the psychiatrist in such cases, and therefore his duty is to state clearly what he has found out about the particular case and not to try to fit the case into his own theories on the general subject.

Homosexuality. To some people this is the nastiest and "worst" sort of offence, but to others it is fascinating in its interest and indeed has a morbid attraction . . . as a study. The psychiatrist dealing with a case must remain as objective as possible. There are several questions which one must have answered by the accused and there are several which the psychiatrist must answer also. For example: How long has this behaviour been going on? What were the circumstances surrounding the first overt manifestations of this practice? Does the man yield to every overture by others, or does he control himself at times?

If the latter, when and why? Does he gain financially by his behaviour? Does he associate only with one person or with one group or indiscriminately? Does he carry out his homosexual practices only with civilians and avoid other Service personnel? Does he show any evidence of remorse or guilt feelings, or is he indifferent, or defiant, or indeed boastful? Is there any evidence that he really wants to be cured or that he would co-operate in any treatment? Is he the "active" partner or the "passive" or either on different occasions? Does he give any evidence of normal heterosexual thoughts, ideas, dreams, impulses or actual behaviour?

A special problem in connexion with homosexuality arises when a man accused of other offences (or while in prison serving a sentence for other offences) puts forward the plea that he is a homosexual, and therefore that the stress of Service life compelled him to commit the offence, e.g. desertion, in order to save him from yielding to this form of behaviour with its dread consequences to him. It is, of course, recognized that individuals who are "psychological homosexuals" may join the Army, sublimate their instinctive urges, adjust themselves well, and be first-class soldiers with a fine and "clean" record. It is true also. I think, that some individuals with latent homosexuality who would in actual life avoid trouble with the Law as civilians by self-control or by never developing into *practising* homosexuals, may under service conditions in special circumstances (e.g. living in an all-male community, isolated from the general world for a long time) become such, or be so disturbed emotionally that their stresses merit some consideration. But however much one accepts these possibilities, in dealing with a man who, after being charged or convicted, **FOR THE FIRST TIME** claims homosexuality as the underlying cause, it is necessary to be extremely chary of accepting his account of himself. In such a situation, one wants to know why the man did not bring the matter up before, whether there is any evidence that prior to his offence he was developing any form of depression or anxiety, whether overtures were made to him in his unit, or since he has been in detention, and his response. Finally, one must consider his motives for bringing up the matter at this stage.

III. Violence.—Crimes of violence vary from murder (very rare) to minor assaults (frequent). In connexion with these charges, the aggressive psychopath has to be studied with great caution. It appears to me to be futile to attempt to classify all of them together and to say, either that the man is constitutionally incorrigible and will not benefit by punishment or that the man is constitutionally incorrigible and that the only thing which will do him any good is a "taste of his own medicine." There are some for whom sympathy, understanding and patience will work wonders and there are others who will regard these qualities as signs of weakness and this weakness as something to exploit. For the former type of case one may feel disposed to state that "Punishment is likely to make him a worse soldier" and also to state, "Although he exhibits some of the characteristics of the aggressive psychopath, I consider that he should be retained in the Service, and that with reassurance and encouragement combined

with reasonable firmness he may yet settle down, adjust himself and become a decent soldier."

The circumstances associated with the assault must be taken into account. There is the totally unexpected bolt-from-the-blue onslaught with no conscious purpose, which may betoken the schizophrenic; and there is also the wild violence without rhyme or reason, later unknown by the bewildered offender, which may indicate an "epileptic-equivalent." Then there is the fierce devastating violence which is a tremendous and indeed grotesque overreaction to some minor, real or imagined slight, indignity or insult (which may have been merely intended as harmless leg-pulling or horse-play) and which may suggest the epileptic personality. Violence in which Chronic Anxiety States may play a part is also to be considered. This term, in my view, covers many types of disturbances and one can consider the man as presenting a constellation of symptoms revolving around a nucleus of hyperfatigability, or of dread, or of morbid irritability. The latter type of case may be subject to urges to commit violent assault which at times are almost uncontrollable. In these cases the assault is rarely against strangers or chance acquaintances or people with whom the relationship is transient or shallow, but is usually against persons with whom the chronic neurotic is emotionally deeply involved. Hence the attack may occasionally be against an N.C.O. but by far the commonest victim is the wife. This type of case, which is quite frequent in civil practice, may become more common in Army practice as more and more married men are provided with more and more married quarters and encouraged to stay for a longer term in the Army.

This trend in the constitution of the Army may produce also an increasing number of cases in the future of a type which are at present infrequently seen. Men in the fourth and fifth decades of life who have a long record of good behaviour and who then begin to have a series of charges, including irritable outbursts and assaults, may be referred to the psychiatrist who will have to consider two distinct problems. Firstly, the possible organic causes of personality change or deterioration, such as cerebral neoplasms, atheroma, early G.P.I., Pick's and Alzheimer's diseases, etc. Secondly, the increasing morbid irritability associated with anxieties on the conscious level, such as economic stresses which tend to loom much larger at this stage of life and which may produce profound psychological stresses; and the increasing morbid irritability associated with anxieties produced by deeper conflicts resulting in sexual impotence, or in some cases hypersexuality compared with the previous decade.

Other diseases which the author has come across in this work should also be borne in mind. Encephalitis lethargica may leave a legacy of genuine uncontrollability, and early acromegalic psychosis may be heralded by, or at least be first noticed as a result of, violent behaviour.

Probably the commonest factor associated with assaults is drunkenness, and this does not usually call for examination by the psychiatrists. Sometimes the point is raised as to the man's increased susceptibility to alcohol as a result of

some illness or head injury. There is no doubt that in many cases of head injury and following some illness, tolerance to alcohol is reduced. The wisdom of such a person indulging in alcohol at all can, of course, be questioned, but that is not primarily the psychiatrist's concern prior to a trial. He is entitled to report the fact of the head injury and the generally accepted medical opinion on this matter.

Outbursts of temper, morbid irritability, with periodic violent episodes may be associated with chronic over-indulgence in drink, and in such cases it is necessary to consider whether the indulgence itself is a symptom of some psychological disorder. Periodic excessive drinking bouts are quite well known to be sometimes manifestations of recurrent manic or hypomanic states, but it must also be remembered that continued steady drinking may mask a true depressive state.

The law does not accept drunkenness as an excuse for crime, but if the psychiatrist sees a case in which alcoholism, in one form or another, is playing an important part, he should go into the matter carefully from the point of view of the effects of detention, the necessity of treatment, the benefit or otherwise of punishment and the suitability for further service.

Changes of personality and deterioration with marked loss of self-control can occur quite rapidly as the result of drinking inferior or poisonous concoctions, especially overseas.

SUMMARY

The psychiatrist can play a very important part in assisting in the administration of Justice, in seeing that in appropriate cases Justice is tempered with Mercy, and that in selected instances treatment rightly takes precedence over the mere question of determining legal guilt with its consequent sentence. This is undoubtedly a worth-while task and one which can best be fulfilled if the Army psychiatrist always remembers that he is not an advocate but a professional and expert adviser.

POLIOMYELITIS IN ENGLAND AND WALES

A CHADWICK PUBLIC LECTURE GIVEN ON FEBRUARY 20, 1951

BY

Brigadier A. E. RICHMOND, C.B.E., M.R.C.S. L.R.C.P., D.P.H., D.T.M.
Royal Army Medical Corps (Retd.)

MR. CHAIRMAN, LADIES, AND GENTLEMEN,

I would preface my talk to you this afternoon by expressing my keen appreciation of the privilege I feel it to be to lecture under the auspices of the Chadwick Trust. My lecture, is, in such circumstances, given under the aura of Sir Edwin Chadwick's great and undying achievements in the field of public health and my only wish is that I were worthier of the honour it is to lecture in association with his name.

Poliomyelitis is an increasingly important disease owing to its growing prevalence throughout the world, to its serious consequences for so many of those stricken by it, and to the cloud of uncertainty which envelops so much of its epidemiology.

Some consider that the origin of the disease dates back to ancient times and that, though perhaps unrecognized in the earlier days, it has been with us in various guises for many centuries. Others have regarded it as a comparatively recent development among the ills that affect mankind.

The mounting significance of poliomyelitis in the last half-century and especially in the past decade has attracted considerable attention and much research into it has been carried out in this and other countries.

Unfortunately, though, adequate research is hampered because no simpler method of propagating the virus exists than inoculation into monkeys; at the same time means of isolating the virus in the laboratory have not yet been developed.

My task this afternoon lies not in the laboratory, clinical and other more scientific aspects of poliomyelitis, of which there are many others far more qualified to speak than I am: but in tracing briefly for you the history of the disease in England and Wales.

It is, however, justifiable and likely to be of interest if I give you shortly a few of the highlights in the history of this disease prior to its first tentative recognition in this country.

The possibility has emerged, from archæological and other researches, of the occurrence of poliomyelitis in ancient times, but it must remain a *possibility*, as evidence allowing of fully reliable diagnosis is lacking.

There is the instance of the skeleton of 3,700 B.C., found in a village S.E.

of Cairo, by Flinders Petrie in which the shortening of one leg and other findings afford some support to a diagnosis of poliomyelitis [1].

There are, too, the delineations on an Egyptian stele of the eighteenth dynasty (1580–1350 B.C.). These were investigated by Ove Hamburger [2], a student of Egyptian art and at the same time a physician. They include three figures, a priest—Ruma, of the temple of Astarte in Memphis a woman and a child. The foot of the man is in a position of equino-varus and the slight flexion of the hip and knee is not enough to raise the heel so high. There is shortening of the femur, tibia and fibula. The staff normally carried in front and parallel with the body is borne crosswise from the shoulder through the bend of the elbow and is alongside the withered leg as a support. The condition seen may be due to other diseases such as coxitis, certain nervous diseases, hip-joint trouble and the like, but the distinct probability of poliomyelitis being the cause must be admitted.

Hippocrates describes a winter epidemic of paralysis on the island of Thasos which also is not without interest.

Archæological investigations in 1921 in a mediæval Norse colony—Herjolfsnes—by a Danish expedition, resulted in the discovery in a cemetery of 25 skeletons of the beginning of the fifteenth century. Some 6 of these gave evidence of disease productive of physical deformities and there is considerable ground for the belief that poliomyelitis was responsible [3].

During the eighteenth century were many allusions to conditions suggestive of poliomyelitis. Here again though they might be due to other diseases.

Some importance attaches to Boerhaave's reference in 1761 to reports which had reached him of paralysis, of a peculiar description, in certain parts of Asia, believed to be due to cold [4].

In 1823 Shaw commented on the occurrence of sudden attacks of paralysis in Army children in India and at the same time called attention to the case of a young man, in whom an attack of paralysis in India as a child had caused physical deformity [5]. Goodeve later (1879) made reference to frequent paralytic illnesses among English children in India, and indeed there was a suggestion that the disease might have been introduced into England in the latter part of the eighteenth century by returning Anglo-Indians, and have spread thence to the Continent.

It will be recollected that Sir Walter Scott was in 1773 attacked by the disease and suffered, as the result permanent lameness of the right leg.

It is interesting that there is some evidence of a prevalence of the disease in America in 1795 and MacNalty tells us of a letter written by Madame le Marquise de la Tour du Pin who was, with her husband, a fugitive in Albany from the French revolution. She says: "My little Seraphine was taken from us by a sudden illness very common in this part of the country, a kind of infant paralysis. She died in a few hours without losing consciousness. The physician from Albany gave us no hope that she would live and declared that this malady was then very common in the country and that no remedy was known. The young Schnuyler who, only the day before, had been playing with my daughter

during the afternoon succumbed to the same trouble a few hours later and rejoined her in heaven."

In this and other countries, in the later seventeen hundreds, other physicians such as Underwood, Shaw, Abercrombie and Badham in England, Jorg in Germany, Monteggia in Italy, have described a number of cases which were not unlike poliomyelitis.

It is Michael Underwood to whom is generally awarded the credit of first describing the disease in treatises he wrote between 1784 and 1799 [6]. He paints a comparatively accurate picture of the disease and shows the confused state of affairs at this period, in regard to the various paralytic conditions between which differentiation today is comparatively easy.

In 1823 Shaw, in his "Nature and Treatment of the Distortions to which Bones of the Spine and Chest are Subject," contributed a chapter on the causes of partial paralysis and wasting of one of the limbs in infancy, which frequently produce spinal distortion. Herein groups of cases are mentioned, which appear to have been of a poliomyelitic type.

We now arrive at an outstanding event in the history of poliomyelitis in this country and that is a report by Badham [7] on 4 cases which occurred in 1835 at Worksop in Notts. The main features emphasized by Badham were firstly, the youth of the patients, all 2 to 2½ years, secondly, the occurrence of apparent cerebral symptoms in the very early stages, thirdly the lack of any degree of impairment of health in any of the cases, and fourthly, some indications of congested, oppressed or irritated brain.

Just about this time a few cases were being reported on the Continent and, in 1840, Jacob Heine of Cannstat, one of a family of skilled orthopædists and mechanics, published the first monograph on poliomyelitis to see the light of day [8]. The details of Badham's cases had focused Heine's attention on certain paralytic cases in his own practice. This led to the study of the disease which he subsequently carried out. Heine comes down to posterity as a pioneer in modern knowledge of this disease.

He recorded its features and described it as "*an affection of the central nervous system, namely the cord, of an irritative and congestive sort.*" Though, at the time, some were opposed to Heine's concepts, these were nevertheless later confirmed.

There followed, from various sources, clinical contributions of varying degrees of importance as a result of which, among other things, the cerebral type of the disease came into prominence.

In 1887 an outbreak of 44 cases was observed by Medin in Stockholm, where previously, as in Sweden as a whole, the disease had been infrequent [9]. Medin's observations contributed much additional information about this disease. It became known as the "Heine-Medin disease" in view of the great extension in our knowledge due to these two men.

Caverley in America in 1894, brought to notice the non-paralytic type and other points, while Wickman, a German extended and clarified Medin's con-

cepts and recognized many cases of the abortive (including the non-paralytic) types.

As far as the pathological aspect is concerned, Cornil in France in 1863 [10] carried out the first positive microscopical examination of a case of poliomyelitis and others did valuable work of this kind including Von Reinecke and Von Recklinghausen who described lesions in the anterior horns and lateral columns of the spinal cord. From then onwards various others made effective contributions to our knowledge of this aspect of the subject, of whom perhaps Wickman should be specially mentioned for his systematic study of poliomyelitis in Sweden in the earlier years of the twentieth century.

As regards virology, from the time of Landsteiner and Popper who in 1908 and 1909 first transmitted poliomyelitis to monkeys much has been accomplished by workers in a number of countries. On the other hand, essential progress has been much handicapped for reasons I have already mentioned. As regards advances made, among others the establishment of three main immunological groups of the virus with various strains of these is of special moment.

Nothing in the history of poliomyelitis is so baffling as its change in the earlier years of the twentieth century from a sporadic to often an epidemic disease. Various theories have been put forward to account for this but proof of either is wanting.

The older literature contains no references to epidemics, and after Heine's monograph there was no mention of such until 1880, although there were reports of groups of cases here and there, occurring within a brief period in a small area.

Some cite a small outbreak in 1868 in the Modum district of Norway described by Bull as the first epidemic [11]. It was thought at first to be cerebro-spinal meningitis and there were 14 cases with 5 deaths. Others quote a Swedish outbreak at Umea in 1881 described by Bergenholtz.

In the years following, outbreaks of varying sizes were increasingly reported, but it was not until the startling outbreaks of 1903 to 1906 in Norway and Sweden that there was a realization of the dramatic proportions which the disease might on occasions assume.

From then onwards serious epidemics occurred, apart from Norway and Sweden, in England, America, Holland, Germany, Austria, Canada, Australia and elsewhere.

Turning our attention more particularly to developments in England and Wales, the first important mention of poliomyelitis in the annual reports of the medical officer to the Local Government Board is to be found in that for 1910-11. Here reference is made to the occurrence of sporadic cases; and also to the appearance of small groups of cases here and there such as those in Herts (1897), London (1904), Upminster (1908), reported on by Pasteur, Batten and Treves respectively.

Evidence had accumulated as to the infectious character of the disease and as to adults as well as children being attacked. It was appreciated too that

paralysis did not always occur and that mild cases were often difficult to recognize.

By the end of 1911, poliomyelitis had occurred in some twenty-one counties with a definite outbreak at Bristol in 1909 of 37 cases investigated by Parker, and in the same year a number of cases in London described by Parsons. In 1910 there were outbreaks in Cumberland (Carlisle) 34 cases and 7 deaths, Northumberland, Nottinghamshire, Leicestershire (80 cases), Dorset, Gloucester and York. In 1911 there were epidemics in Devon and Cornwall, Huntingdon, Hampshire, Bedfordshire, Suffolk, Yorkshire, Westmorland, Derbyshire and Wales.

It was therefore clear that there was a scattered prevalence of poliomyelitis throughout much of the country, and equally clear that it should be made a notifiable disease. This was first effected in London for a limited period. Other sanitary authorities followed this lead.

Finally, in March 1912 the disease became legally notifiable and it became possible to assess its incidence throughout the country with a reasonable degree of accuracy. It must, however, be borne in mind that, in comparing statistics of the earlier periods with those of later years, the existence of non-paralytic poliomyelitis was not appreciated as fully in the earlier years as later, and that as time went on notifications of this type of the disease increased with its fuller recognition.

In the annual report for 1911-12, special attention was paid to Farrar's investigations in Leicestershire and Dorset in 1910 and to those of Reece in 1911 in Devon and Cornwall. The latter traced 154 cases in the two counties and of these 34 were fatal. Pathological investigations by Dr. Mervyn Gordon showed typical lesions and Levaditi in Paris infected monkeys with material from two cases. Apart from the very interesting reports by Farrar and Reece, Gordon contributed a critical review of the work done on the virus, and Dr. MacEwan a review of the clinical characters and epidemiology of the disease. MacEwan too carried out an interesting investigation in 1913 into the prevalence of poliomyelitis in parts of Lancashire and Westmorland the results of which pointed to the spread of infection by personal contact. The large bulk of the cases were in children and there were no multiple cases in families.

At this time, Sir Arthur Newsholme—medical officer to the Local Government Board—voiced a warning as to the possibility of cases of poliomyelitis being at times misdiagnosed as cerebrospinal meningitis and in March 1912 the first of a series of memoranda on poliomyelitis saw the light of day together with a similar publication on cerebrospinal fever.

Up to 1915 and for some years after, it was true to say that England and Wales did not suffer from large epidemics of poliomyelitis such as those which had affected Sweden, Norway, and the U.S.A. and, in fact, isolated, or small groups, of cases only occurred.

There was nevertheless no lack of appreciation of the increasing importance of the disease and of the dire possibilities should its epidemicity increase to

large proportions. The part probably played by healthy carriers and abortive cases was also realized.

There was much discussion as to why poliomyelitis was becoming seriously prevalent in certain countries with previously low incidences and why its epidemic character was being so much enhanced. Some thought it to be due to an increased virulence of the causal organism; others that it was owing to a more general distribution of the virus in many countries. Flexner had incidentally demonstrated the feasibility of increasing the virulence of the organism by passage through monkeys.

In the 1915-16 annual report of the medical officer to the Local Government Board, Bruce Low surveys the international scene. He quotes Flexner's description of the disease—"one of the saddest of diseases"—as also Buzzard's emphasis on "its peculiar cruelty to its victims." He stresses how the influx of children into the orthopædic department of a hospital, with paralyses, deformities, curvatures and so on which had developed in the course of a brief illness, may often have been the first indication of an outbreak of poliomyelitis in the locality.

Bruce Low also emphasized the extent to which knowledge of the disease was increasing, and mentioned an American suggestion that all articles on the subject written prior to 1907 should be destroyed and forgotten.

He reminds us of the first production of poliomyelitis in monkeys by Landsteiner and Popper in Europe 1909; of its similar production independently a little later by Flexner, Laws, and Strauss in New York; also of its transference from monkey to monkey by Leisner and Wismer in Vienna in the same year.

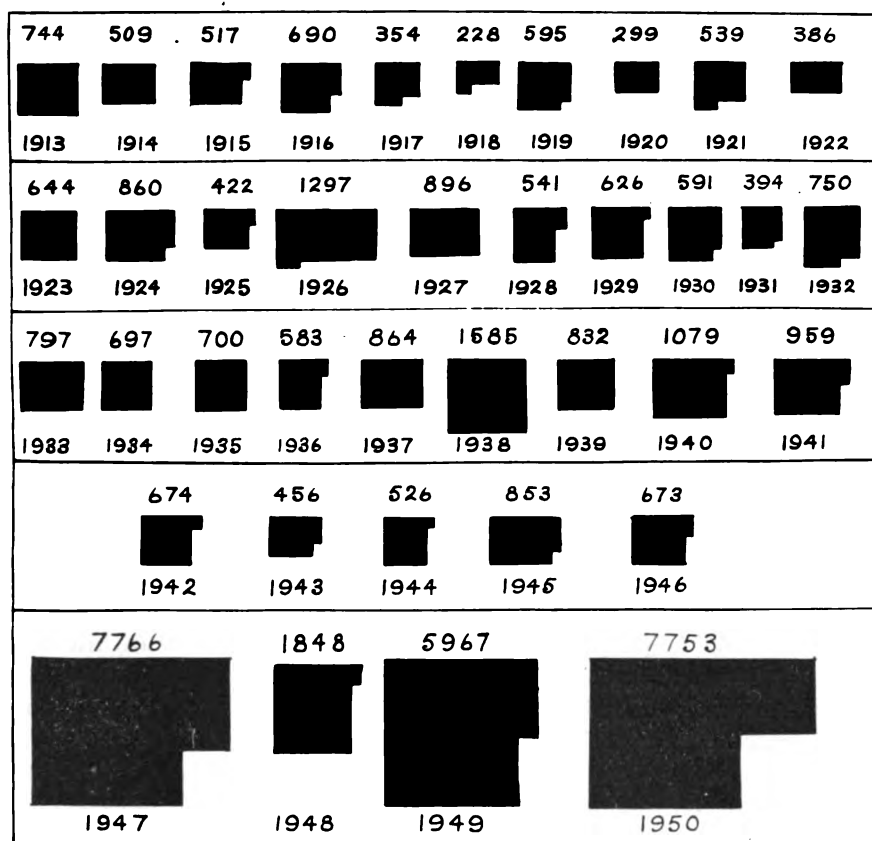
In 1919 the separate notification of polio-encephalitis came into force largely owing to previous confusion as to whether it should or should not be included in poliomyelitis for notification purposes, and to help distinction from encephalitis lethargica.

This system remained operative until 1950 when a further change was made and polio-encephalitis is now included in poliomyelitis, distinction being made between the paralytic and non-paralytic types. In this lecture the term poliomyelitis includes polio-encephalitis unless otherwise stated.

Notification as already mentioned was not in full operation until 1913. In this year, there were the largest number of annual notifications in the decade 1911-20, viz. 744. As will be seen from Chart I the lowest were 228 in 1918. There is little else to be said of this period except to mention, specially, small localized outbreaks in Esher, the Dittons, Epsom (MacNalty), Cambridge, all in 1917, and in Matlock (Sturdee) in 1920. Perhaps too should be recorded the results of a small investigation, in line with those of more recent work, and pointing to a greater prevalence of the disease in those living in the more sanitary environments.

In 1921 with 539 notifications including 51 of polio-encephalitis there was a relatively high rate in parts of Cornwall, and in the country district around Wantage (Parsons). In the following year notifications fell to 386, but rose in 1923 and 1924 to 644 and 860 respectively. In 1923 there was an interesting

POLIOMYELITIS
ANNUAL CORRECTED NOTIFICATIONS 1913 TO 1950



outbreak at Hastings. A fall to 422 notifications in 1925 heralded the record year of 1926 with 1,297 cases (including 138 of polio-encephalitis). This was equivalent to about 3 per 100,000 of the population compared with 1 and 2 per 100,000 in previous years. The trouble started in mid-July, large towns were not specially affected and it was chiefly small urban communities in rural districts which were struck.

The distribution of the disease was fairly general but Leicester, Broadstairs and Essex—81, 74 and 58 cases respectively—provided outbreaks of special note.

In the decade following 1926, notifications varied between 1 and 2 per 100,000 annually. In this period various small outbreaks were studied, among others Grimsby and Spilsby in Lincolnshire in 1930, Glossop Borough, Oxfordshire and contiguous parts of Berks in 1932, Berks and Somerset in 1934, Gloucester in 1935, and Southall in 1936.

It still remained that little advance was being made in the study of the natural history of the disease, owing to the lack of an easily applied test, to

uncertainty as regards recognition in the earlier stages, and to the problem of abortive cases.

In 1931 the chief medical officer to the Ministry of Health drew attention to recent suggestions by Kling as to the possibility of infection by food and water, these being based on work by Levaditi, Schmitz and Willemin in the Bas Rhin department, and by others in Sweden, Saxony, and Roumania, and by the experimental infection of monkeys by injection and the recovery of the virus from the faeces.

The outstanding feature of the 1937-46 decade was the occurrence in 1938 of the largest annual number of cases yet recorded—1,661 with 178 deaths, an incidence per 100,000 of about 4. Prevalence was below the average up to the end of July when there was a sharp rise in Essex. From then onwards there was a rapid increase throughout the whole country—with 83 per cent of the cases occurring in the last two quarters of the year.

The incidence was highest in the Eastern and South Eastern Regions—6.3 and 5.0 per 100,000. The North suffered least—1.7 per 100,000. Oxfordshire 21.2 per 100,000, the Isle of Wight 17.5, and Lincolnshire 11.8 were the counties most severely attacked. There was no fall to the mean of the preceding seven years until late in February.

In 1947 came the holocaust of 7,766 cases with a total incidence of 18 per 100,000—4½ times that of 1938 and the disease more widespread than it had ever been before.

The epidemic began in late May, six weeks earlier than the normal experience to date, the spread appearing to be radial from certain main early groupings—London—Birmingham—West Riding—East Lancs—and Tyneside. The peak was reached in the week ending September 6 with 708 notifications. Thenceforward there was a gradual decrease, but winter notifications remained higher than normal, including those in the first four to five months of 1948. There was on the whole a tendency towards higher rates, 40 and over per 100,000, in sparsely populated areas. The highest incidence in a county of over 200,000 was in Bedfordshire (32.1) and the lowest in Devonshire (9.7).

There was no close correspondence between the areas principally affected in 1938 and 1947, but Lincs, Oxford, Sussex E., Isle of Wight and the East Riding of Yorks, coupled with Carmarthen and Radnor had relatively high rates in both years.

Comparing the years of high prevalence of poliomyelitis, 1947 showed a tendency to a wide distribution side by side with a decline in the local intensity of epidemics.

Hopes were aroused in 1948 of a prolonged respite from the more severe ravages of the disease but in 1949—5,967 notifications were equivalent to a rate of 14 per 100,000. With the general rise in incidence in June there were several sharp outbreaks in widely scattered and relatively small communities—for instance, Newhaven, week ending June 18; Cambourne—Redruth, week ending June 25 and following week; Okehampton, week ending July 9; New Forest, week ending July 16. Weekly notifications never reached those recorded in the 36th week of

1947 (708) but the epidemic lasted much longer. The seasonal distribution was no exception to the rule.

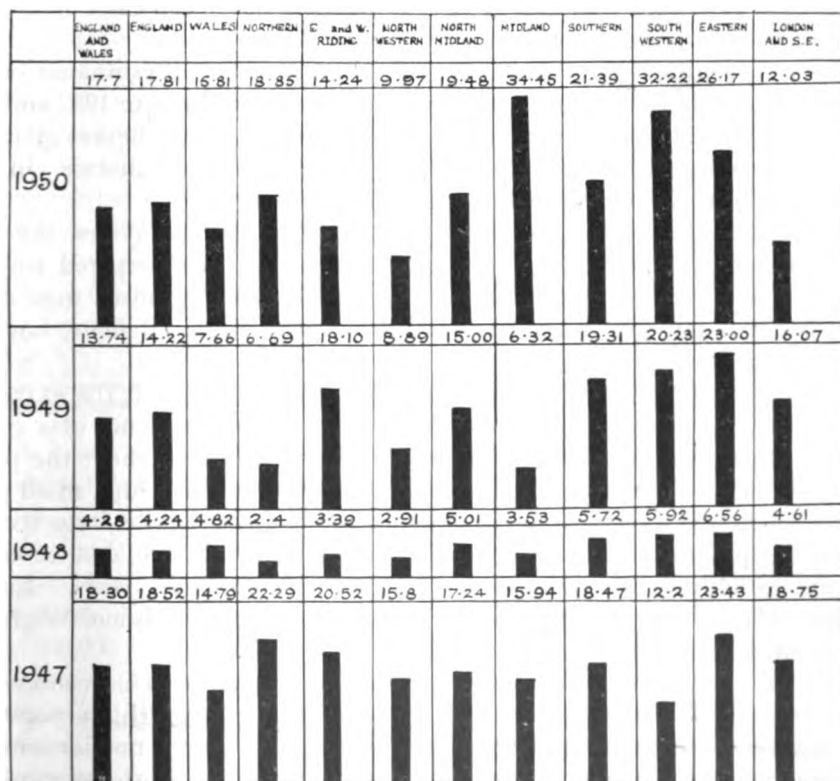
In late May of 1950 with but little breathing space since the experiences of 1949, uncorrected weekly notifications reached 50 and doubled themselves the following week. A month later they were 212. The peak was attained in the week ending August 26 (589) and from then onwards there was a gradual fall to 53 in the last week of the year. The total corrected notifications for 1950 were 7,753 only a few short of those of the record year 1947.

The distribution of the disease was very general but it is noteworthy that in three counties, Lancashire, Warwickshire, and the West Riding of Yorkshire, notifications in the first quarter of the year were comparatively high and that these counties alone produced 22 per cent of the total notifications for the year.

Outbreaks of special importance which occurred were those in Birmingham, Bristol, the Isle of Wight and East Kesteven (Lincs).

An examination of my second chart is of interest as indicating the regional distribution of poliomyelitis in England and Wales in the past four years. From this it will be seen that the highest incidence attained in this period was in 1950

POLIOMYELITIS
REGIONAL INCIDENCES 1947—1950



in the Midland region comprising Herefordshire, Shropshire, Staffordshire, Warwickshire and Worcestershire, and that it had in this region been preceded by relatively much lower rates in the other three years. The same is to a material extent true of the South-Western Region—Cornwall—Devonshire—Gloucester—Somersetshire—Wiltshire—which in 1950 showed the next highest incidence in the four-year period. Excluding the non-epidemic year 1948, the Midland, Northern and North-Western regions and Wales—in 1949—gave the lowest figures for the period referred to.

I have nothing to add to this brief story of the advance of poliomyelitis in England and Wales as a whole save to mention that as regards seasonal incidence there has been little change over the years, and in the past four years approximately 1·4 per cent of cases have occurred in the first quarter, 2·5 per cent in the second, 68·7 per cent in the third and 26·5 per cent in the fourth, with the largest proportion of cases in August 32·2 per cent and September 27·2 per cent.

To regard the picture from a more particular, as distinct from general, aspect, we have recently commenced a study of the incidence of poliomyelitis in all the various boroughs and urban and rural districts—1,472 in all—in the twenty-eight-year period 1922–49 and the summated incidences for this period in the various areas may be of interest.

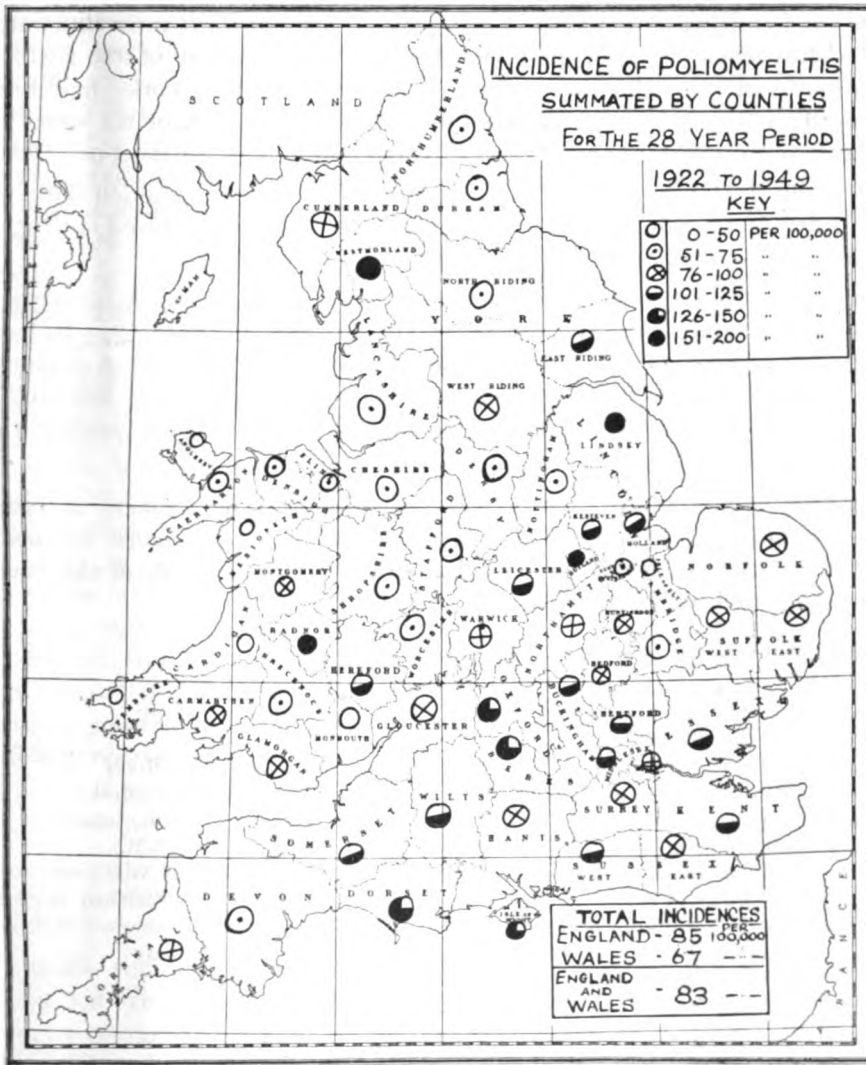
Before going any further though, I would remind you that we are dealing with notified cases only and that there may possibly have been cases of abortive and unrecognised types which have gone unrecorded.

I have to confess also that the summated incidences are estimated on the mean of the populations of the boroughs and districts concerned in 1922 and 1949 and not on the true mean. It can, however, be assumed that the figures given you represent reasonably accurately the incidences of the disease in the twenty-eight-year period referred to.

Considering first the various county areas in England and Wales, the situation is pictorially represented in the map which has been prepared for you. Anglesey takes pride of place with only 16 per 100,000 and indeed nine of the Welsh counties fall within the two groups of lowest rates. Radnor, however, had a very big incidence of 152.

Of the English counties, Westmorland headed the list with the extremely high rate of 196. In the first year of the series there was evidence of a core of infection in this county and with a steady fall of cases throughout the period and much increased numbers in 1940, 1947 and 1949 coupled with a small population, it achieved its unenviable position in the list. Rutland, a large sparsely populated rural area, came next with 155 cases per 100,000, but in actual numbers 29 only, confined to ten out of the twenty-eight years. Lincoln (Lindsey) 151 per 100,000, Oxford 144, Berkshire 138, and the Isle of Wight 128 followed in that order.

The Isle of Ely and the Soke of Peterborough emerged from the contest with almost invisible stains on their escutcheons and these large thinly populated rural areas even in 1947 and 1949 never produced more than 4 notifications in a year, and in seventeen and eighteen years respectively out of the twenty-eight



had no cases at all. Durham followed 55, and then Worcester, Stafford, Lancashire 58, 60, 61 per 100,000 respectively.

As regards county boroughs Oxford produced the highest rate 197, Grimsby following with 178, and then Canterbury 151, Leicester 138 and Hull 133. Blackburn, West Bromwich and Oldham, 33 in each case, shared first prize for the lowest incidence, closely followed by Wallasey 37, Doncaster 39, and Dudley 40 per 100,000. On a basis of notifications per square mile Leicester had the largest rate 25.3 and Barrow-in-Furness the lowest 1.1. The London County rate was 83 per 100,000, Holborn having the largest incidence 263 and Finsbury the lowest 43 per 100,000. Notifications per square mile were highest in Holborn 141 and lowest in Greenwich 10.

In the Municipal boroughs and urban districts Broadstairs must be awarded the wooden spoon with 642 per 100,000, largely on account of the historical school outbreaks there in the autumn of 1926 Ripponden (Yorks) and Fowey (Cornwall) followed with 498 and 438 respectively, instances of the effect of a comparatively small number of cases in small populations on rates per 100,000.

Hexham (Northumberland), Knaresborough (Yorks) and Shildon (Durham) came next. As regards incidence per square mile Willesden showed the highest rate 26·7 of the municipal boroughs and urban districts.

In the rural districts Saffron Walden (Essex) headed the black list with 370 per 100,000 largely on account of 39 notifications in 1947-49. Billesdon (Leicester) followed—311—a small population with a large number of cases in 1926. Then came Cuckfield (Sussex) 286 per 100,000 closely followed by Uppingham (Rutland), North Westmorland and Ringwood and Fordingbridge (Hants) in that order.

I would now ask you to turn your attention for the moment to certain municipal boroughs and urban and rural districts which distinguish themselves by remaining free of notifications of poliomyelitis for the whole of the twenty-eight-year period we are considering.

They were as follows:

MUNICIPAL BOROUGHS AND URBAN DISTRICTS

Bollington (Cheshire)	Ellesmere (Salop)
Padstow (Cornwall)	Wem (Salop)
Torpoint (Cornwall)	Halesworth (Suffolk)
Axminster (Devon)	Saxmundham (Suffolk)
Lynton (Devon)	Appleby (Westmorland)
Brightlingsea (Essex)	Scalby (Yorks N.R.)
Godmanchester (Hunts)	Tickhill (Yorks W.R.)
Tenterden (Kent)	Washington (Durham)
New Hunstanton (Norfolk)	Barrowford (Lancs)
Higham Ferrers (Northants)	Rainford (Lancs)
Brackley (Northants)	

RURAL DISTRICTS

Ely (Isle of Ely)
Thornlev (Isle of Ely)
Wath (Yorks N.R.)

Of the twenty-one boroughs and urban districts named, nineteen are of small size with, in practically every case, populations of under 5,000 and densities under 1,000 per square mile. They are, in general, bordered very largely by rural areas with, in some instances, the sea in addition. Any abutment on other urban districts, where it does occur is slight, and, in practically all cases, the bordering districts concerned showed low incidences of the disease in the twenty-eight-year period we are considering. There are, however, one or two exceptions to this, notably the very high figures in North and South Westmorland rural districts which bound the Appleby urban district in large degree.

Washington, Barrowford, Rainford and Higham Ferrers come into a different category and are characterized by proximity to urban rather than rural districts. Washington in Co. Durham—the largest—is bordered by a number of districts in some of which there were materially high rates of the disease. The remaining three all have populations of 5,000 or less, and as regards densities, Barrowford and Rainford with low figures of 234 and 475 per square mile and Higham Ferrers 1,000. There were a number of instances of districts with significant incidences adjacent to them. Rainford was particularly fortunate in retaining its virginity with Upholland urban district over the boundary with a rate of 324 per 100,000.

As regards the three rural districts, Ely, Thorney and Wath, the first named has a population of some 33,000 spread over about one hundred square miles, roughly 360 persons per square mile. The incidence of poliomyelitis in the surrounding areas was low. Thorney some 34 square miles, with a density of 7, and Wath, with a density of much the same size—both had rather larger poliomyelitis rates in proximity to them but managed to retain their freedom from the disease.

Finally and before passing on from our twenty-eight-year survey, there are one or two other points worthy of attention which emerge. There has in the past been some discussion as to whether there is a greater prevalence of poliomyelitis in the more thickly populated areas or the reverse. Time has not yet allowed of a complete examination of our records over the whole country from this point of view. We took, however, a 10 per cent random sample with the following results:

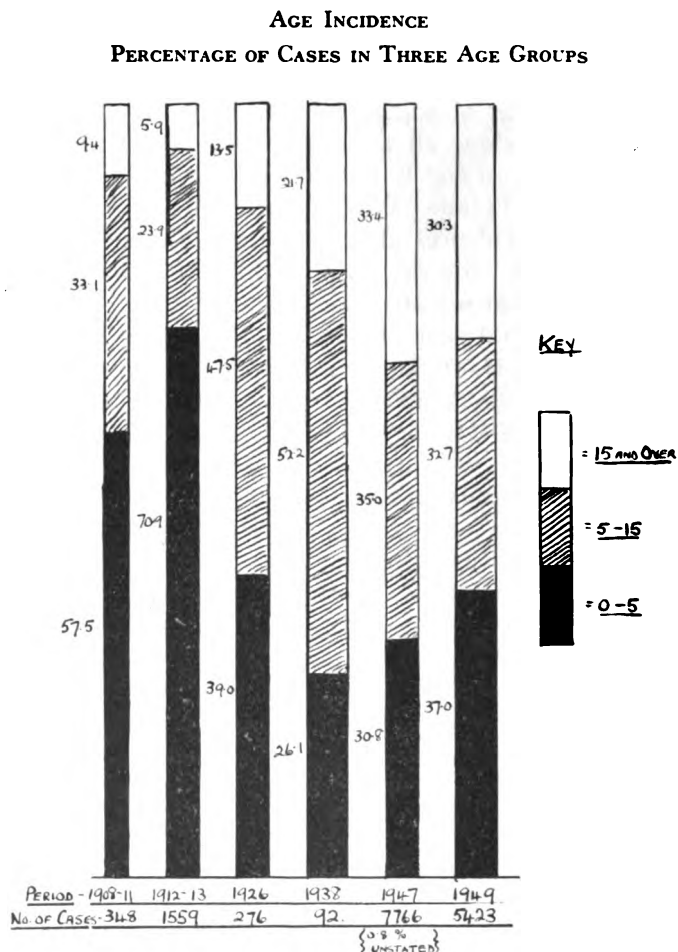
	<i>Average density per square mile</i>	<i>Incidence of cases per 100,000</i>	<i>Cases per square mile</i>
County boroughs	12,518	70.7	8.8
Municipal boroughs and urban districts	2,655	91.0	2.5
Rural districts	166	101.0	0.02

I think you will agree that these figures are statistically significant and indicate a much lower prevalence of the disease in the thickly populated county boroughs compared with the rural areas, and indeed a decidedly lower rate in such boroughs in comparison with the municipal boroughs and urban districts.

The gap between the latter and the rural districts is not so marked.

There is, too, something of interest in the age incidence of poliomyelitis which is graphically indicated in Chart 4. You will note the material shift from the younger to the older age-groups, and the evidence in support of doing away with the old title of infantile paralysis. In the great Swedish epidemics of the first decade of the century and in the early American and Australian epidemics the attack rate was very high in the age-group 0-5 and very low in adolescents. In recent epidemics the rate has decreased in infants and increased in those of school age and over. It seems, however, that in communities with less advanced sanitation, the earlier type of age distribution is still found, e.g. Malta (Seddon), Japan (Paul) and Mauritius (McFarlane). In other civilized countries

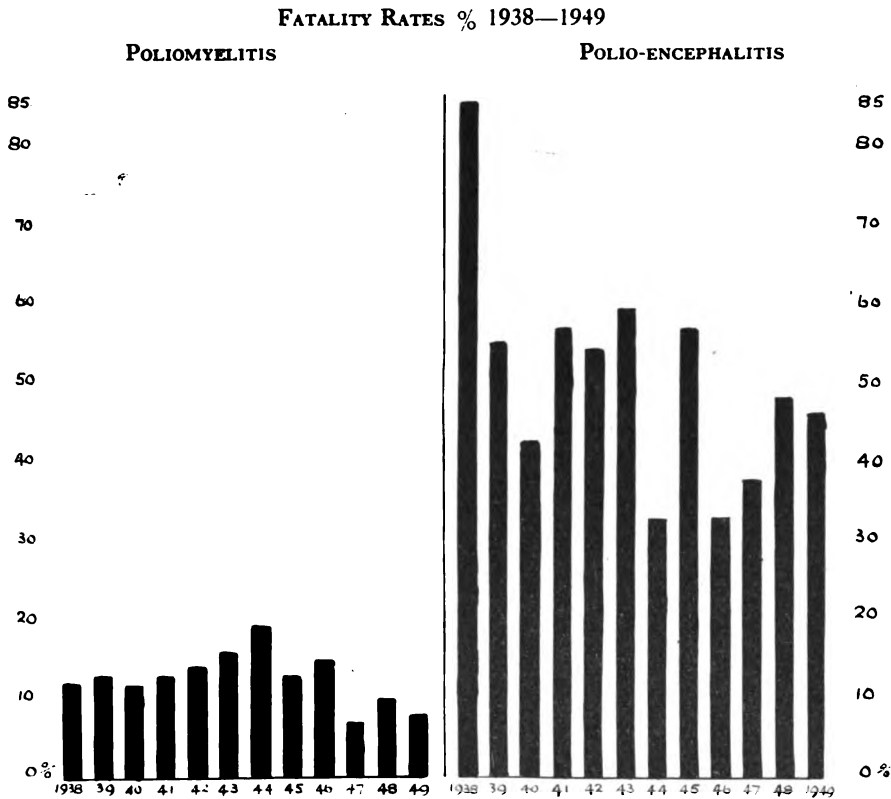
Poliomyelitis in England and Wales



the change in age incidence has reached much the same stage as in England and Wales.

Turning to case fatality rates, you will see from the chart that, in respect of poliomyelitis, these rates have tended to be lower in years of high incidence of the disease, and that the lowest rates in the period 1938 to 1949 were in the epidemic years 1947 and 1949. It must, however, be accepted that fatality rates are influenced by the extent to which non-paralytic cases are notified, and that in epidemic years there is probably a tendency towards more thorough search for these and to their better notification. As would be expected the fatality rates of polio-encephalitis are very high: such cases, though, form a very small proportion indeed of the total poliomyelitis notifications.

Lastly the occurrence of singleton cases in districts is worthy of comment. Here, just as so often happens in families and communities, there were in the twenty-eight years a material number of districts producing in any one year a



single case only of the disease. Stating it briefly—in the four epidemic years 17 per cent of the 1,442 districts in England and Wales on the average each year notified one single case only. In the remaining years of the twenty-eight-year period the figure was 13 per cent. Expressed as percentages of total notifications 5·8 per cent were district single cases in the epidemic years and 26·6 per cent in the other years.

There is much of value in the results of an enquiry into hospital cases in the year 1949 which were published in the monthly Bulletin of the Ministry of Health and Public Health Laboratory Service of October and November 1950 by Bradley and Gale. This investigation covered the large bulk of all such cases in the year referred to.

Time does not permit of any detailed study of the information given in this valuable report, and I will merely summarise it as follows.

The fatality rate was highest, 26·9 per cent in those over 45 years of age and lowest 4·2 per cent in those of 1–4 years. 79·4 per cent of all cases were paralytic, and of those paralysed who did not die, 40·5 per cent were slightly, 38·5 per cent moderately and 21 per cent severely paralysed.

Broadly speaking, of those admitted with suspected poliomyelitis 5 or 6 per cent were likely to die, 9 or 10 per cent to be severely paralysed, 17 or 18 per

cent to be paralysed but with proper treatment able to work, and 65–70 per cent practically all right.

Respirator treatment was necessitated in 10 per cent of cases—in actual numbers 559. Of these 213 required such treatment temporarily only, 29 permanently, and 317 died.

With regard to the therapeutic aspects of this disease, progress in treatment over the years has been disappointing and no specific treatment of any proved value has developed. The new antibiotics appear in no case to have any special activity against the virus.

Much reliance was at one time placed on *convalescent serum*, and, largely as the result of encouraging reports from Australia, Canada and elsewhere, it was in extensive use for some years. By 1935 doubts of its value had much increased and Walshe in the *British Medical Journal* of 19.10.35 stated that after many years of trial, the *weight of opinion was that it was of no proven value*.

Just about this time the treatment recommended by Sister Kenny, an Australian, attracted much attention. This lady was by the courtesy of the L.C.C. allowed to demonstrate her treatment on a series of cases at the Queen Mary's Hospital for Children at Carshalton and the trial started on 13.7.37. The results were watched by an honorary advisory committee of orthopaedic surgeons and neurologists.

Stating it very briefly, they reported that they could not admit Miss Kenny's claim that a complete cure could be promised in any group of cases, and felt that very early attempts to initiate voluntary movements and also early and frequent passive movements while harmless were not of proven value. They agreed with Miss Kenny on the value of hydrotherapy in the form of hot and cold douches, also that under certain conditions splints could be dispensed with. Their ideas, however, did not conform to hers as regards the entire abolition of splints and surgical appliances in treatment. Miss Kenny's treatment makes a heavy demand on staff and time, but a modified technique is now in use in many orthopaedic departments in this country.

In regard to treatment, mention must not be omitted of the development of the respirator for dealing with those suffering from respiratory paralysis.

Drinker of Harvard was the first in the field and his iron lung was demonstrated to University College Hospital Physiological Society in May 1931. There is a reference to its use at the Wingfield Orthopaedic Hospital, Oxford, in the *Lancet* of 12.11.32, and in 1934 it was used in the Great Ormond Street Hospital. It gradually came into more general employment.

Later, other types were developed such as the Bragg-Paul pulsator which operates by positive as distinct from negative pressure.

A modification of the Drinker by an Australian—Both—is also in extended use. From the historical point of view the generous action of Lord Nuffield in 1938 in providing iron lungs for hospitals genuinely in need of them must not go unrecorded.

In general I suppose the experts will agree that treatment has not changed much over many years and that strict rest and symptomatic measures in the early stages followed by steps to prevent deformity and to encourage the action of muscles or parts, which will include active and passive exercises, massage, hydrotherapy, and finally orthopædic surgery, are the main features of present-day therapy. Electrical methods of treatment have fallen into disrepute and disuse.

I would not like to conclude this review of history of poliomyelitis in this country without making some mention of those unhappy victims of permanent paralysis as the result of this disease. In the past four years alone with a total of some 25,000 cases of the disease, at least 2,500 must have been left with severe residual paralysis and unfitted to return to normal life to say nothing of



Infantile Paralysis Fellowship, Xmas Party 1950. Attendance about 1200

those less severely affected. Much is done to help these cases and to rehabilitate them as far as possible and there is no lack of activity to this end. Time does not allow of any detailed reference to this, but I would like especially to draw your attention to the Infantile Paralysis Fellowship with its headquarters at 37, Tavistock Place, London, W.C.1.

This was founded some eight or nine years ago owing to the efforts of 2 sufferers from poliomyelitic paralysis, Mr. F. Morena and Miss Patricia Carey. Members and associates of this fellowship have in the course of time grown to some 7,000 in number and there are I believe 26 branches in England, a branch in Northern Ireland and in Wales, and a group in Scotland. It is an association of sufferers from poliomyelitis which aims at the encouragement and development of their interests and abilities, assistance in their training and re-education, alleviation of the loneliness of the friendless among them, and putting those requiring it in the way of advice and assistance. It endeavours also to arouse the social conscience on their problems and difficulties, to help on, when necessary, legislation on behalf of sufferers and to urge the energetic pursuit of research into the causes, prevention and cure of the disease.

Mr. Chairman, ladies and gentlemen, I have detained you over long and must bring my lecture to a close. There is much that I have omitted in what has been mainly a factual account of poliomyelitis in England and Wales.

For this account, I have been dependent on the work and investigations of others, and there is nothing of originality in what I have said. If I were to list my benefactors in full, you would be kept here much longer than you desire.

I would, however, mention specially my indebtedness to the Annual Reports of the Chief Medical Officer to the Local Government Board and later to the Ministry of Health and to the Registrar-General's Annual Statistical returns, which afforded the basis of the figures I have given you. I have too had considerable recourse to the Poliomyelitis Survey by an International Committee organized by Jeremiah Millbank and published in the U.S.A. in 1923; also to investigations by Dr. F. G. Crookshank who was, incidentally, a Chadwick lecturer on poliomyelitis in 1918 and to publications by Sir Arthur MacNalty who also later gave a Chadwick Lecture on the same subject.

I would like finally to thank Mr. F. H. Bradley of the Ministry of Health who went to much trouble over many weeks to help me in the statistical work entailed in the preparation of this lecture.

REFERENCES

- [1] MITCHELL, J. K. (1900) A Study of a mummy affected with anterior poliomyelitis. *Tr. A. Am. Physicians*, **15**, 134.
- [2] HAMBURGER, O. (1911) A case of infantile paralysis in ancient times, *Ugeskr. f. læger*, **73**, 1565; extracts *Bull. Soc. franç d'hist de la méd.*, Paris, **10**, 407.
- [3] HANSEN, F. C. C. (1924) *Anthropologica medico-historica groenlandiae antiquæ*. I. Herjolfnes. *Meddelelser om Grønland, Copenhagen*, **67**, 291.
- [4] BOERHAAVE (1761) *Prælectiones de Morbis nervorum*. Leyden.

- [5] SHAW, J. (1823) On the Nature and Treatment of the Distortions to Which the Spine and the Bones of the Chest are Subject. London, Longman, Hurst, *et al.*
 - [6] UNDERWOOD, M. A Treatise on the Diseases of Children with General Directions for the Management of Infants from the Birth. London, 1784; a new edition; London, Mathews, 1789; Philadelphia; Dobson, 1793, 4 ed. London, 1799; Mathews, 7 ed. London, Callow, 1819.
 - [7] BADHAM, J. (1836) Paralysis in childhood; four remarkable cases of suddenly induced paralysis in the extremities occurring in children without any apparent cerebral or cerebro-spinal lesion, London, *M. Gaz.*, n.s., 17, 215.
 - [8] HEINE, J. (1840) Beobachtungen über Lämungszustände der unteren Extremitäten und deren Behandlung, Stuttgart. F. H. Köhler.
 - [9] MEDIN, O. Ueber einer Epidemic von spinale Kinderlähmung, Verhandl. d. X Internat. med. Kongr. 1890, 2: Abt. 6.37. 1891.
 - [10] CORNIL, V. (1863) Paralysie infantile; cancer des seins; autopsie; alterations de la moelle épinière, des nerfs, et des muscles; généralisations du cancer, *Compt. rend. Soc. de biol.*, 3.s.5, 187.
 - [11] LEEGAARD, C. (1914–15) Die akute Poliomyelitis in Norwegen, *Deutsche tschr. f. Nervenk.*, 53, 145.
-

ANÆSTHETIST'S SAFETY TRAY FOR SYRINGES

BY

Lieut.-Colonel KEITH F. STEPHENS, M.B., B.S., D.A.

Royal Army Medical Corps, War Office Adviser in Anæsthetics

IN modern anæsthesia there is a growing tendency to use a number of drugs with entirely different pharmacological properties by the intravenous route. For example, a facio-maxillary case may well receive injections of thiopentone, pethidine, C.10, C.6 and finally methedrine without the anæsthetist necessarily being accused of polypharmacy. These drugs are frequently administered intermittently in divided doses and with the exception of thiopentone are indistinguishable from each other once they have left the ampoule, being clear, colourless, aqueous solutions. Herein lies the grave danger of confusion and the ready possibility of injection of the wrong drug with disastrous results.

A tray has been designed to provide a specific location for the syringes in use by the anæsthetist during an operation, and as an additional safeguard metal clips with miniature name plates are available to attach to each syringe when filled. The general form and appearance of the tray can be seen from the accompanying photographs. In particular it should be noted that:

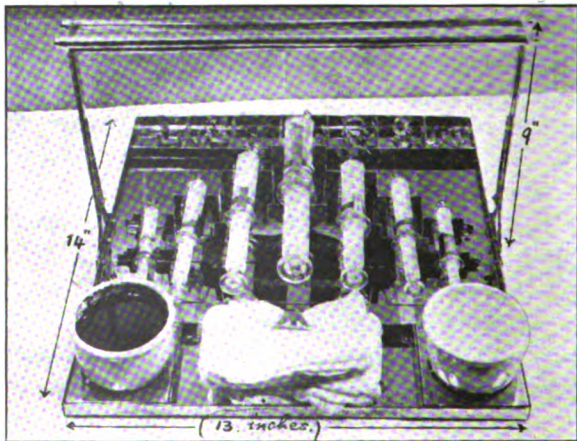


FIG. 1.—Shows the tray fully loaded with syringes and the individual name plate clips in position on the syringes.

(i) The tray can be accommodated conveniently on the top shelf of the anæsthetist's theatre trolley.

(ii) In the front of the tray special compartments are available to contain two gallipots and a bundle of gauze swabs, the latter being held in position by a spring-controlled clip.

(iii) Slotted rests are provided in graduated sizes to accommodate one 20 c.c., two 10 c.c., two 5 c.c. and two 2 c.c. syringes.

(iv) The tray is engraved with the main headings Analeptic, Pethidine, Thiopentone, and Relaxants, indicating a specific location for the particular syringe.

(v) The far side of the tray has been divided into seven compartments in which name plates may be kept for ready accessibility.

(vi) Incorporated in the handle of the tray is an adjustable stay, which

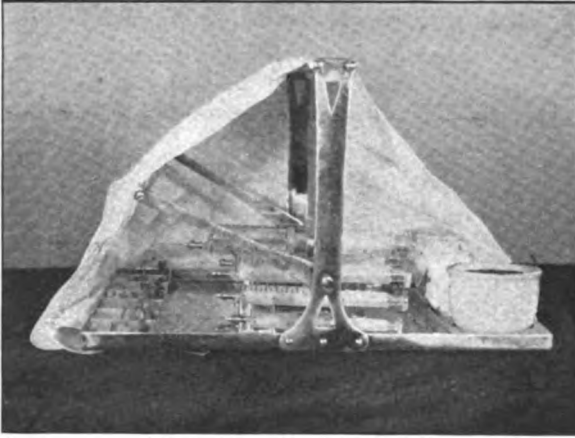


FIG. 2.—The tray has been partially draped to show that the towel is held away from contact with the points of the needles.

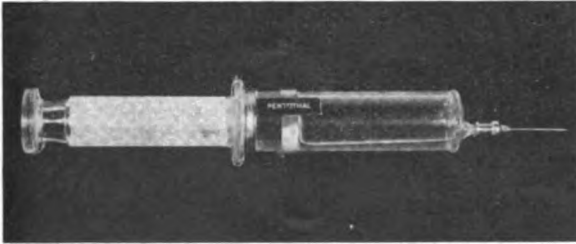


FIG. 3.—A close-up of the name plate clip on the pentothal syringe.

when dropped forward protects the needles of the syringes and enables tray and contents to be covered with a sterile towel, when for some reason there may be delay in their use.

Criticism is often made that a safety device of this sort being by no means entirely foolproof may lull the anæsthetist into a false sense of security and thus defeat its own purpose. It is certainly not claimed that this tray as designed is proof against the saboteur or the criminally negligent. Within these limitations it does provide a means of easy identification of different solutions which, once drawn into the syringe, may be indistinguishable from each other.

I am indebted to the Director of Surgery to the Army for his encouragement and permission to publish this report, to the Officer Commanding and members of the staff of 13 Command Workshops R.E.M.E. for their invaluable assistance in the design and construction of the tray, to Captain I. R. Haire, R.A.M.C., Junior Specialist in Anæsthetics, for suggestions and constructive criticisms and to the Officer Commanding Royal Army Dental Corps Depot and T.E. for the photographic reproductions.

B.A.O.R. MEDICINE 1946 - 1949

BY

Brigadier F. J. O'MEARA, M.A., M.D., F.R.C.P.I., D.T.M.&H.

Late Royal Army Medical Corps

Consulting Physician, B.A.O.R.

Continued from page 376

(15) POISONING

Loss of life due to poisoning is always to be regretted. Cases of poisoning in 1946 were usually accidental or due to carelessness. The soldier rarely destroys himself by deliberately taking poison. During the winters of 1945-46 and 1946-47, the most frequent cause of accidental death was carbon monoxide poisoning. This was due to an endeavour to keep warm during the winter, in an unventilated room, with a charcoal or coke stove burning. It occasionally was due to the escape of coal gas from a gas stove or hot water geyser.

Deaths due to carelessness were more frequent and were often associated with demobilization parties. Crude schnapps having been purchased, contrary to orders, from D.P. women, usually Poles. During 1946 there were:

(a) Methyl alcohol: 25 cases: 10 deaths.

The patients were usually unconscious when admitted to hospital. Those that recovered had impaired sight ranging from total blindness due to retrobulbar neuritis or if of later onset, optic atrophy, to central scotomata or contraction of the visual fields. No survivor escaped some degree of damage to his sight. As these cases were not usually found until the morning after the party, washing out the stomach did not assist them. They did not respond to intravenous sodium bicarbonate solution. Replacement of the methyl alcohol in the tissues with ethyl alcohol (whisky) was not attempted.

(b) Ethyl alcohol: 24 cases: 4 deaths.

At post-mortem examination death had resulted from vomit entering the larynx and trachea and causing suffocation.

In the case that survived there were no sequelæ.

(c) Ethylene glycerol (Anti Freeze Mixture):

In 1946 it occurred mainly amongst German Prisoners of War employed in transport units. It reappeared in 1949, after the currency reform, amongst British other ranks. Symptoms are of slow onset over two or three days. There is a complaint of tingling in the hands and feet. Later wrist and foot drop may develop. Coma is followed by death.

Poisoning due to morphia and barbiturates was found amongst civilians. 1947 found the B.A.O.R. relatively adjusted and there were fewer admissions as a result of poisoning.

Syphilis had been treated with penicillin, 4 million units, by intramuscular injection. This treatment did not completely control the infection. Consequently at the end of 1946 instructions had been issued to combine arsenic and bismuth with the penicillin.

B.A.L. (British Anti-Lewisite) was available, in adequate quantities, as an antidote to arsenic. During the course of the year, there were 3 cases of acute arsenical encephalopathy, with 2 deaths; 29 cases of severe exfoliative dermatitis, no death; 7 cases of agranulocytosis with recovery in all. Dr. K. Robertson has studied 4 of these cases in detail (Robertson, 1949).

The community remained adjusted during 1948. Cases of poisoning were few. In the study of cases of jaundice it, however, came to notice "that where good laboratory evidence of simultaneous renal and hepatic damage was obtained," the question of carbon tetrachloride poisoning had to be considered (Gauld, 1948).

The history of exposure to carbon tetrachloride fumes is only obtained by careful questioning. The patient does not realize that he has been exposed to the fumes. The study of the subsequent illness, after accidentally drinking one ounce of carbon tetrachloride by a male, aged 53, has been made and recorded by Dr. R. W. E. Watts. The patient reported sick about ten days after drinking the carbon tetrachloride, with discomfort in the upper abdomen. He was in uræmia, was jaundiced and lapsed into coma. There was gross damage to both liver and kidneys. He made a good recovery.

The civil element in B.A.O.R. was less adjusted in 1949. As a result, for the first time, deaths and admissions to hospital, after deliberately taking poison, were more numerous than the admissions due to carelessness.

There were two deaths from taking prussic acid: one after taking an overdose of phenobarbitone: two due to excessive consumption of ethyl alcohol, with subsequent vomiting and suffocation.

(16) PSYCHIATRY

The appointment of medical officers as Specialist Psychiatrists has permitted a more humane application of the Army Act. The main application of psychiatry should be in the rejection of personnel who are unsuitable for life in the Army. This, however, is usually prevented, in its application, by the shortage of available man-power. Consequently the psychiatrist finds that he has to assist in the best utilization of the man-power, allotted to the Army.

Selection did play a large part in deciding who accompanied the 21 Army Group to France in 1944. So that at the time they landed on the Continent of Europe, it may be assumed that collectively, they were above average in mental stability, as found in the Army.

At the commencement of 1946 a large proportion of the B.A.O.R. was due to return to civil life. The psychiatrists at that time found that their work fell under four main heads:

- (a) Dealing with psychotic cases.

- (b) Dealing with disciplinary cases. Psychopathic delinquents formed a large proportion of this group.
- (c) An increase in psychoneurosis precipitated by domestic and release problems.
- (d) A very large number of venereophobes. This group had fallen to its average by the end of 1946.

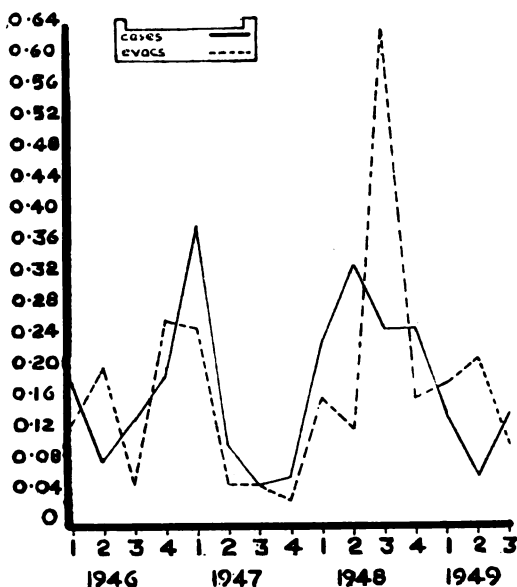
During 1947 the Army was trying to return to its peacetime life and to find suitable material to train as non-commissioned officers. At this time although the incidence of psychosis was falling (Graph 9), the incidence of mental deficiency (Graph 10) was rapidly rising. *The National Service Soldier did not contribute to these groups. The men who formed these groups were men on regular engagements, usually re-enlistments, after release in 1946.* It will be seen that these graphs maintain their trend to 1949.

The number of psychiatric cases admitted to hospital in 1948 was 410—1·63 per cent of all cases admitted to hospital. This number can be further analysed: psychoses 71 cases (0·28 per cent); mental deficiency 32 cases (0·13 per cent); psychoneurosis and psychopathic personality 307 cases (1·22 per cent).

The National Service soldier did contribute to the admission rate for psychoneurosis (Graph II).

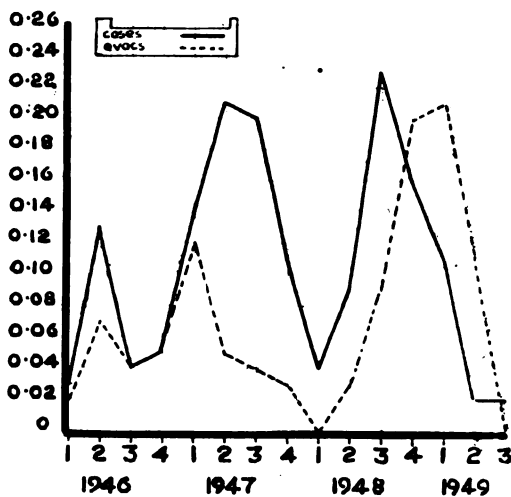
This shows a steady rise in 1947, since maintained. It is due mainly to the limited field from which the Army is permitted to select its members.

GRAPH IX



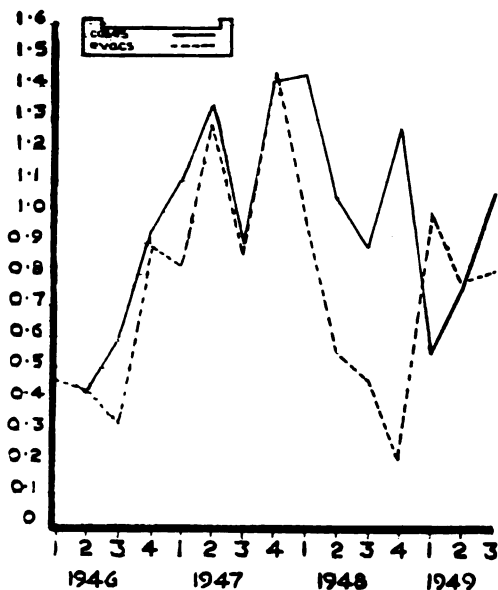
INCIDENCE OF PSYCHOSES—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

GRAPH X



INCIDENCE OF MENTAL DEFICIENCY—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

GRAPH XI



INCIDENCE OF PSYCHONEUROSES—BRITISH ARMY, OTHER RANKS ONLY
RATE PER 1,000 (QUARTERLY).

(17) DERMATOLOGY

From 1946-49 the basis of the dermatological work did not show much variation. The great bulk of the work, both with outpatients and cases admitted to hospital, was due to bacterial infections. The immediate cause of admission was frequently secondary infection, with either *Staphylococcus aureus* or a streptococcus, of a seborrhœic or scabetic condition. The clinical conditions most frequently encountered were impetigo, ecthyma, sycosis barbæ, boils and carbuncles.

In impetigo the recurrent seborrhœic type was more frequent than the classical type. At first cutaneous diphtheria was relatively frequent. By 1949 it was not seen. Extragenital chancres were frequently seen until the end of 1948. The common sites were fingers, lips, face and tongue. The character of the secondary adenitis, caused by the chancre, usually gave a clue to the clinical diagnosis. The rash of secondary syphilis was relatively common and was frequently missed. It was seen most frequently in the autumn of 1948.

Scabies infections were common but treatment with benzyl benzoate emulsion was very effective, when properly applied. Tinea infections of the feet and groins were common. They did not give trouble, as a source of wastage, while units were in barracks. Their numbers, however, promptly increased when the units went on training or manœuvres.

Warts were common. Molluscum contagiosum was occasionally seen and the incidence of keratoderma blenorrhagiæ has been discussed with Reiter's disease.

Seborrhœa was very common. If the hair of the head had been kept shorter, this source of wastage would have been reduced. Hyperidrosis of the feet was a frequent excuse to report sick.

The most frequent cause of urticaria was penicillin treatment. Treatment was also the most frequent cause of contact dermatitis. Very frequently a prolonged stay in hospital resulted from treatment with sulphonamide dusting powder or cream, penicillin cream and the too frequent application of benzyl benzoate emulsion.

The incidence of textile dermatitis remained steady. If the patient did not become desensitized in six weeks he was sent to England. Dermatitis due to contact with petrol and diesel oil was not common.

Psoriasis had a steady and relatively frequent incidence, as male adults with this condition are not excused National Service. It was sometimes seen in a very acute generalized form.

Pityriasis rosea had a steady, seasonal incidence.

During 1947 there was a considerable incidence of dermatitis due to a return to arsenical therapy in the treatment of syphilis. Dermatitis was seen that varied from erythema to severe exfoliation in 29 cases. There were fortunately no deaths amongst these 29 cases. In the treatment of these cases B.A.L. (British Anti-Lewisite) may have been of some slight assistance where the condition developed before the sixth injection of arsenic. The main

factors in their recovery was the very great care and devotion with which they were nursed. Intramuscular penicillin is assumed to have protected them from secondary cutaneous and lung infections. Blood proteins and chlorides were found to be very depleted in these cases. Where indicated, plasma was given by intravenous injection. Extra sodium chloride was given by mouth, when necessary, intravenously. The use of sodium chloride was controlled by the quantitative estimation of urinary chlorides (Fantus, 1936).

In 4 cases arsenical toxicity took the form, after their course of treatment had been completed, of hyperkeratosis. This was most marked in the skin of the palms and soles.

Cases of erythema nodosum were examined and kept under observation in an endeavour to obtain evidence of lung tuberculosis.

In 1947 a patient (F., 23) was recalled, a month after discharge from hospital, for a repeat X-ray examination of her chest. An area of infiltration, due to tubercle, had become visible in her lung fields.

In 1949 three cases had had erythema nodosum, during the year showed X-ray evidence in their lungs of infection with tubercle. One of these was a Norwegian soldier (23 years). In 1948 he had received B.C.G. immunization. In July 1949 he developed erythema nodosum. X-ray examination of his chest was positive for tuberculosis. His sputum was negative for tubercle bacilli. Blood sedimentation rate (Westergren) was at 1 hour, 6 mm.

(18) GENERALISATIONS

During the four years covered by this review acute poliomyelitis and infective hepatitis were in evolution and establishing themselves in their human host.

Diphtheria and infections mononucleosis were in devolution.

The balance of lung tuberculosis had been upset during the war and it was still tending to gain on the community.

Syphilis, profiting by the opportunity of war and disturbed social condition, did not appear to vary the course that it has followed since Pavia. It gained on the community and again became a killing disease. Those that controlled the use of penicillin were able to limit its ravages amongst themselves. With a wider application, it could still further have reduced human misery and suffering.

(19) IN CONCLUSION

The British Army of the Rhine has, so far, during my working life, been called into being in 1919 and in 1946. The diseases encountered have been recorded here.

Baron Larrey has left a record of the effects of cold and starvation on the Army under French Command, mainly Prussian, that invaded Russia in 1812 (Mercer, 1832).

As the same dismal record of suffering was again experienced by members

of the same nation in the winter of 1941-42, an addendum on the causes of medical wastage, in the German Army, in Russia, during that period is attached.

(20) ACKNOWLEDGMENTS

"A centre of acute medicine that I know I shall not see again" (Bulmer, 1945).

This paper is a record of the work of the physicians, psychiatrists, pathologists, dermatologists and venereologists who worked in the B.A.O.R. from 1946-49. The majority of them have returned to civil life and the military phase of their life's work is here recorded—not without pride.

Their Consultant learnt a great deal from their devoted work.

This work was at all times facilitated by the Directors of Medical Services, B.A.O.R., Major-General Sir Edward Phillips, *K.B.E., C.B., D.S.O., M.C.*, and during 1949 Major-General F. R. H. Mollan, *C.B., O.B.E., M.C.*

ADDENDUM

By November 1941 the time programme for the invasion of Russia had not been maintained. There had been no provision for a winter campaign. It is stated that Field-Marshal von Brauchitsch advised Hitler to consolidate the position gained by the German Army and to retire behind the line of the river Dnieper.

This sound tactical advice was not accepted. The winter of 1941-42 in Russia and Germany was unusually severe and April 1942 found the Army under German Command in Russia—composed of Germans, Ukrainians, Hungarians and Roumanians reduced by two million men. Of this number roughly a million were dead or had suffered amputations, which rendered them unfit for further military service.

This unnecessary wastage sapped the strength of the German Army more than any subsequent loss in battle.

The conditions that caused this loss were frostbite, exposure to cold, rheumatic fever, pneumonia, infective hepatitis, typhus fever, bacillary dysentery and malaria. To a lesser extent malnutrition played its part due to the scorched earth policy of the retreating Russians and the activities of by-passed islands of Russian troops and partisans.

REFERENCES

- Army Council Instructions (1491) War Office, May 28, 1941, 4 (1).
- BARBER, M. D., and STUART, R. D. (1946) *Lancet* 2, 594.
- BOTTOMLEY, J., and CHRISTIE, D. K. (1947) A fatal case of primary diphtheria of the cervix and urethra. *Journal of Obstetrics and Gynaecology*.
- BULMER, E. (1945) *British Medical Journal*, 2, 873 and 876.
- Discussion (1949) *Proceedings of the Royal Society of Medicine*, 42, 9, 707.
- Editorial (1946) The bleeding peptic ulcer, *Lancet*, 2.
- Editorial (1947) "Q" fever, *J. Amer. Med. Ass.*, 133, 12.
- FANTUS, J. B. (1936) *J. Amer. Med. Ass.*, 107, 14.
- GAULD, R. L., *et al.* (1948) Medical Bulletin E.C., U.S.A., 5, 7.
- GSELL, O. (1949) Leptospirosen in Europe mit Ausnahme der L. icterohaemorrhagiae. Berlin.
- His Majesty's Stationery Office (1948) Nomenclature of Diseases. 9, 88, 226.
- JERSILD, M. (1947) Proceedings of The International Conference of Physicians, London, Sept. 11.

MACKAY DICK, J. (1947) *Journal of the R.A.M.C.*, **89**, 6, 290.

—, and WATTS, R. W. E. (1949) *Lancet*, **1**, 907.

MERCER, J. C. (1832) Translation from the French of le Baron D. J. Larrey, Surgical Memoirs of the Campaigns of Russia, Germany and France. Vol. IV, Philadelphia.

MINKENHOFF, J. E. (1948) *Lancet*, **2**, 8.

PRINGLE, Sir J. (1764) Observations on the Diseases of the Army, 4 Ed., London. Public Health Adviser to the High Commission, Germany (BZ). (1949) Weekly Communicable Disease Report. Nov. 3, 1949.

ROBERTSON, K. (1949) *British Medical Journal*, **1**, 799.

RODGERS, Sir L. (1910) Bowel Diseases in the Tropics. Cholera. London.

RYLE, J. A. (1948) The Natural History of Disease, 2nd Ed., 215.

SADUSK (1947) *J. Amer. Med. Ass.*, **133**, 16, 1192.

SCHULZE, H. A., and GAULD, R. L. (1947) Medical Bulletin E.C., U.S.A., **4**, 4, 20.

TIDY, Sir H. (1949) A Synopsis of Medicine. 9th Ed., London. 752.

CAVALRY SURGEON

BY

Major J. B. NEAL

Royal Army Medical Corps

DURING recent reorganization in the Library of the Royal Army Medical College, four journals were found which had been kept by John Francis Smet, Surgeon of the 8th Light Dragoons, between 1815 and 1830. Two contain only copies of periodical returns—"Remarks and Observations" (on the health of troops) from October 1815 to February 1819, with daily meteorological observations over the whole of this period, and an intermittent series of half-yearly "Reports of Medical Transactions," Quarterly Dissection (i.e. Autopsy) Reports and Summary Observations on Prevailing Diseases from January 1819 to October 1821. A third is taken up, partly by copies of his claims for Medical Allowance (a *per capita* sum for the troops under his medical charge) from April 1815 to November 1821, and partly by copies of his outgoing letters. The fourth is wholly a letter book.

John Smet (he refers to his brother as Smith) graduated M.B. at Louvain in 1793 and joined the 8th (King's Royal Irish) Light Dragoons as a Regimental Mate (a Warrant Officer) on October 3, 1794. In this capacity he served in Belgium and Holland in 1794-5 and at home 1795-6, and embarked in August 1796 for the Cape of Good Hope, where on Christmas Day 1796 he was promoted Assistant Surgeon. At the end of 1802 the regiment moved to India, where Smet was promoted Surgeon on August 9, 1808, after having been once superseded for advancement.

Here he served, always with the same unit, until the end of 1821 when he came home on sick leave—the only leave, he tells us, which he had taken during his service. He rejoined the regiment at Norwich in November 1823, and retired on half-pay on December 2, 1824. He died on September 21, 1840.

None of the books available contains statistical returns, but it is possible to build from the reports a picture of the conditions and methods of military medical practice in India in the early nineteenth century, and to amplify it by extracts of the correspondence. Of the six years covered by the returns, the first five were spent in Meerut and the last in Cawnpore.

No numerical incidence of sickness can be quoted, but the Regimental Hospital contained one hundred and twelve cots, for a unit of upwards of 600 men, while the Quarterly Dissection Reports record up to fifteen necropsies in one three-monthly period. The reports describe well-sited and constructed barracks, while the tents used while the regiment was on the march were "high

and roomy, with double cloths with a space between to keep off the direct rays of the sun." No indication is given of the size of a **barrack building** or tent, nor of the number of men accommodated in each, except that "each troop has a barrack to itself."

Mr. Smet considered the "rations very ample, consisting of good bread and one pound of meat daily," mutton from April 1 to September 30, and either beef or mutton during the remainder of the year, together with half a pint of arrack daily per man, "generally new and distilled from sugar" and served out undiluted, "this being left to the men's discretion." (The constantly repeated references to hard drinking, excess of spirituous liquors, dissipation and drunkenness would indicate that discretion was not a universal virtue.) The report adds that "the regular rations are not however the only food the soldiers use, as their ample pay in a country where provisions are so very cheap enables them to have a variety of additional dishes on their tables daily."

Clothing during the five or sometimes six months of the cool season was as in Europe, while during the hot weather white calico, provided by the men at their own expense, was worn.

Living conditions are best described in Smet's own words: "The Europeans have native cooks and native attendants of every kind attached to them, and indeed it is not likely that soldiers enjoy so many conveniences and comforts, not to say luxuries, in any part of the globe as what they do under the Presidency of Fort William." This is borne out by a strength state dated October 25, 1817, while the regiment was engaged in a march beginning and ending at Meerut, which lasted from October 1817 until April 1818. This return shows a European strength of 611, with 4,433 natives, made up of: quartermaster's establishment 571, syces and grass-cutters 1,504, dooly bearers and hospital attendants 442, bazar followers 963 and "servants of all descriptions" 953.

For such a march, Smet states that "movements of troops (when not near an enemy) always take place in the hot season at so early an hour as to bring the Corps to its new encamping ground shortly after sunrise, and in the cold weather, the march is in general over by 9 o'clock."

Prevalent diseases include diarrhœa and dysentery (ascribed to the moist atmosphere and walking in wet shoes in long grass), febris continua communis ("frequently following dissipation"), synochus (a continued fever), hepatitis and pneumonia. Christmas and New Year are constantly accompanied by an increased incidence of diarrhœa and febris continua, and "dissipation on return from the siege of Hattrass" is blamed for an outbreak of diarrhœa and dysentery in March 1817. Venereal diseases are uncommonly mentioned: except when the regiment was marching, the "public women" were inspected weekly, always without warning, to prevent their taking steps to conceal any disability.

It is somewhat surprising to read that "cutaneous diseases are very rare, at least in this part of India. . . . I have once observed a few cases of lepra in a Native Battalion. . . . Psoriasis is not often met with amongst the natives.

and still more seldom amongst the Europeans. No other cutaneous disease (in so far as I can remember) has ever come under my observation." At the time he wrote this, Smet had served thirteen years in India.

During the period covered by these reports, three outbreaks of cholera are described, though in little detail. One is the basis of a lengthy report to the War Office, but as it is in the form of answers to a questionnaire, and the questions are not given, the answers lose something of their value. In the first, July-October 1819, the number of cases is not stated, but all but one recovered on treatment by "bleeding, hot baths, fomentations and very large opiates." In 1820, 4 cases out of 8 died, while in 1821, the disease broke out on May 21 and continued to the end of the year. The reports here are deficient, and no figures are available for the April-July quarter: the only evidence for July-October is the Dissection Report, in which seven necropsies on cholera patients are recorded; while in the quarter October 1821-January 1822, 7 patients died out of 19. The report for this quarter ends: "The cholera morbus has now left us."

Mr. Smet's treatment of cholera has already been noted. For dysentery and diarrhoea he relied upon purgatives, followed by either a mixture of castor oil, gum arabic and tincture of opium, or pills of calomel, ipecacuanha and opium. Febris continua communis was met by cold affusions to the shaven head, blisters, leeches and venesection, while intermittent fevers received decoction of cherayta (a "kind of gentian") mixed with "moderate quantities of neutral salts": quinine was not well regarded owing to the frequent symptomless "obstructions of the liver" encountered in those who had spent many years in India.

The remedy for piles is unfortunately illegible, but oil of wheat is noted for ringworm, and for gonorrhoea "kabaub chinee, a name of a seed resembling black pepper. About a tablespoonful of this seed powdered and mixed with a pint of water is recommended."

In March 1820, there is a reply to the Secretary of the Medical Board on a therapeutic trial of Aluminous Chalybeate Water, which Smet found a "very powerful medicine, which consequently requires very great circumspection in ordering it for soldiers, who are generally addicted to excesses in spirits and whose stomachs are often very irritable." He speaks of its "good effects in debility of the stomach and that general languor which follows great dissipation," and proposes to give it a full and fair trial "should any cases occur of spleen, rickets or gleet" and "in the complaints women are subject to."

Vaccination against smallpox was conscientiously carried out, "vaccine matter" being sent from Calcutta at the beginning of each cold season and propagated as long as possible by inoculating only a few children each week. When the supply of available children failed, dried crusts were kept and used until they lost their potency.

Necropsy was performed in every fatal case "except when, from the funeral party being in waiting, or the time taken in dissecting some other body, it was not found practicable." In one quarterly report, three necropsies only are

recorded, occupying together less than one foolscap page. In view of the pencilled note at the foot of this sheet, ". . . the manner of drawing up the post-mortem reports is concise yet descriptive, and cannot easily be improved upon," one of them may be quoted in full as written:

"Philip Murtaugh, a large strong man seldom in hospital, though like the foregoing one a very hard drinker, died on 2nd April [1820] of Hepatitis Acuta. In this case the thorax was not examined as the state of the abdomen made that unnecessary, and which from want of time was impracticable (the funeral party being in waiting very soon, almost as soon as the body was quite cold), the liver was of a very large size the right lobe of which adhered to the short ribs and contained an abscess which broke on turning it the amount of pus in it amounted to at least 11 oz. the whole abdomen was filled with water, the intestines were healthy."

To complete this general survey, we may quote the "Commissary-General's statement of the number of camels allowed for the Hospital of a regiment of Dragoons":

Camel loads of clothing	...	...	...	...	7
Camel loads of bedding	...	...	...	...	5
Camel loads of medicines	...	...	...	...	2
Camel loads of wine	...	...	...	...	3
Cooking utensils and such things as bazaars don't supply	...	...	...	...	2
Plates and mugs, etc.	...	...	...	...	2
Close stool pans	...	...	...	...	1
Spare Camels	...	...	...	...	2
					—
					Total 24
					—

Turning now to the letter books, we can see from Smet's day-to-day correspondence something of the problems of a Regimental Surgeon. On July 15, 1815, he writes to the Commanding Officer, Lieut.-Colonel Westenra: "Sir, I beg leave to represent to you that a considerable proportion of the hospital cots are out of repair, and require to be new bottomed, and request that you will have the goodness to take the necessary steps to render them again serviceable for the patients on them. . . ."

At this time Smet was engaged in a law-suit in the local courts against an Indian. The origins of this do not appear, but in one letter he states that "the late Sibnarain Mozoondar of Cawnpore had been put in jail some days before his death for the sum of RS. 13,441-1-10." There is a copy of a letter authorizing John Crake, Surgeon of His Majesty's 67th Regiment, to receive on Smet's behalf such monies as might be paid by the Judge of the Zillah Court at Cawnpore, together with a formidable inventory of Sibnarain's property, but there is no record of whether the debt was ever settled.

Crake appears to have been a close friend of Smet's, and, after his death, Smet exercised an unofficial guardianship over his child, born, it appears, of an irregular local union.

On September 16, 1815, there is a letter to an unknown patient: "Dear Sir, I told you in my last note that your Fevers depended upon your way of living, and that it was of no use to take medicines for their removal unless you altered your mode of life, which I believe you either cannot or will not do. Under these circumstances, it cannot be very pleasant for me to attend to your complaints, unless attention is paid to my Directions, even if my time was not so much taken up as it is, . . . I shall not mention to the Adjutant that I have repeatedly urged your being on horseback every morning at 5 o'clock, the restoration of your health and keeping healthy depending thereon. It will depend on yourself to follow my directions given in the way of my Profession, or to act for yourself whatever the consequences may be."

Shortly after this there is a protracted correspondence between Smet and his Commanding Officer regarding the health of a young Cornet. Smet reports that he has had biles [*sic*] on his legs, several attacks of fever, and a contusion of the foot from his horse treading on it, but he pleads too short an acquaintance to express an opinion on his mental state. The Cornet is frequently found intoxicated, but Smet cannot decide whether from spirits or from drugs introduced into the hookah. We never learned the outcome of this unhappy case.

Reference has already been made to the daily ration issue of half a pint of spirits, and in October 1815 Smet records that this is increased to a pint when extra batta is issued. Plainly anticipating observations on his report of the death from drunkenness of two troopers, he submits a recommendation that, between March and October, spirits should be issued twice rather than once daily, and diluted with a double quantity of water. He also suggests that "it will be of material advantage to their health to impede, as far as is practicable, their obtaining any additional quantity of spirits to purchase, or their hoarding it up on the days preceding those on which they expect this extra allowance."

In January 1816, he writes to one of his Assistant Surgeons, who has sent for him from his bed in the early hours of the morning: "From the many disagreeable occurrences which have happened in my intercourse with the Assistant Surgeons since I am promoted, I can but conclude that an inclination to insult me exists. . . . You must know, in our relative situations, if an excess of wine makes you so unguarded as you have been, it will be your own fault if I am ever put to the necessity of taking serious notice of the like occurrence if ever repeated."

An attempted suicide on May 12, 1816, brings more trouble. On account of the distance—half a mile—of the hospital from the barracks, Smet had arranged for a doolie to be permanently available near the Serjeant-Major's Quarters. This could not be found when it was wanted for the suicidal trooper, and enquiries revealed that during the previous two years it had become the practice for the Orderly Serjeant to go daily for orders to Brigade Headquarters in the doolie. Serjeant-Major Ward writes to Cornet Stammers, the Adjutant: "Sir, the doolie is ordered to the hospital every morning when drills are over.

The Orderly Serjeant had to take his horse yesterday—there is no doolie for the Serjeant to go in today. The Colonel ordered they should go every day for orders in a doolie—please to let me know how the Serjt. is to go.” Meanwhile Smet writes to the Officiating Superintending Surgeon, asking to be relieved of the duty of managing the doolies and bearers, and concluding: “As everything which is directed from Authority must of course be done, and continue to be so, and I may not be relieved from the duties assigned to me by the 37th Article, how am I to conduct myself? or would Government not allow an additional doolie on application (an Adjutant’s Orderly Serjeant’s doolie) with which the Hospital Establishment would have no concern whatever.”

(The correspondence on this subject continues intermittently until September 1817, while in August 1819 there is a record of the Auditor-General disallowing the cost of additional doolies, then said to have been originally authorized in 1804.)

This is closely followed by two other letters, one complaining that seven new brass stool pans received from the Commissariat leak: the second explaining that the allowance of lamp-oil is insufficient to permit of the wards, cooking-room and “necessaries” being lighted all night.

In July 1816, whether to the Commanding Officer or to the Superintending Surgeon does not appear: “Dear Sir, I am sorry you have disapproved of the state the hospital was in yesterday, and that I had not better understood the Regulations. Had I known I would not be allowed to fill in the old Prescription Books, though drawn out in the new form of the Diary, I should certainly not have done so. The boards to paste the Diet Tables on will be ready today. I trust that experience will show you that there is no good will wanting on my part to follow up your Directions.”

At the end of 1816 there is difficulty about Hospital Stoppages. Smet, strongly supported by the Superintending Surgeon, has been marking as excused only those patients whose disabilities are covered by the strict wording of the regulations, namely, Fracture, Dislocations, Severe Bite of a Horse and Dangerous Contusion of the Head. The Colonel, however, favoured a more liberal interpretation, to cover any injury sustained on duty, and apparently obtained the approval of the Commander-in-Chief for his view, as Smet is required to furnish a list, retrospective from December 19, when the order was published, to August 1, 1816, of men exempted under the new ruling, in respect of whom a refund was to be claimed.

In August or September 1817 we find a conflict of professional opinion: “I find myself sufficiently warranted in approving of Capt. Williams’s proposal to improve the use of Howley’s arm, which does not appear to me to be done as the man in question is deemed a malingerer, nor do I object to his being shown to the Superintending Surgeon, provided the information and opinion of Surgeon Macdowall is first applied for, as that officer can give as much information on the original injury as I can on the present state I find it in. . . .”

In October 1817 Smet, in Camp Agra, has medical charge of the 1st Troop or Battery of Native Horse Artillery, and from his claim for Monthly Medical Allowance the pay of a "Native Doctor" appears as ten rupees a month.

A letter of October 1818 to an unknown officer is worth while quoting in full: "Dear Colonel, I had proof a couple of years ago of your regard for the 8th Dragoons in a letter you wrote to the late Sir John Floyd [Colonel of the Regiment] where you spoke so well of the Extract of the Regimental Record Book referring to the memorable 18th May, 1794, which letter was communicated to me as being the Author of this Record Book. I therefore claim your former acquaintance and venture to introduce the bringer of this letter to your favourable notice as being an old and faithful Dragoon who was in the field on that dreadful day—it is Patrick McKeon, whom you will undoubtedly recollect: this old and regular soldier is now invalided, and has requested me to say a word explanatory of how he has conducted himself these many years, should he fall in with Sir John Ormsby Vandeleur or with you. I hear the General Sir John lives abroad, and therefore address this letter more particularly to you in this man's favor, who has always been a very clean Dragoon, for ever a duty man, keeping himself sober (a great wonder in India) with perhaps a very occasional omission—he hopes that if he can wait upon you with a favorable character he may get by your assistance some employment amongst the gentlemen you may be acquainted with, if he is found not altogether undeserving of it."

(The Regimental Record Book refers to an "Historical Record of the Regiment from its being Raised until 1803" which Smet had written, and which forms the subject of a later letter. The action of May 18, 1794, refers to an engagement at Bousbecque (Rousbeck according to Cannon: Bouslieke in Smet's own book) on the river Lys during the war against the French Republican Army, in which the 8th Light Dragoons had played a gallant and effective part.)

On October 21, 1818, he writes to a fellow-officer: "You found me some days ago in the midst of new forms of Returns of a very perplexing kind which Surgeons are directed to send quarterly to Europe [i.e. to the Army Medical Department] and a strict uniformity is enjoined." He goes on to invite his correspondent to arrange with the surgeons of all the King's (i.e. as distinct from the East India Company's) regiments for the new form to be taken into use for the following, rather than for the current, quarter. (It later appears that in February 1819 the orders were amended to require the return to be made in duplicate, while in July 1819 a fresh form again is prescribed.)

In April 1820 Smet writes personally to Sir James McGrigor (then Director-General) enclosing two subscriptions which he has collected for the Medical Officers' Widows' Fund, with a request that the donors' names should be printed in the Annual Report.

On May 7, 1821, there is a request for the use of an Electrifying Machine on loan from the Medical Depot, "to which it shall hereafter be carefully returned." There is no indication of the disability for which this apparatus.

which was demanded at the instance of the Assistant Surgeons, was required.

On July 24, 1821, Smet places his apothecary under arrest, notifying him and the Major of Brigade in writing, accompanied by the charge: "Crime. Mr. George Daly, Apothecary doing duty in the Hospital of the 8th Light Dragoons by order of Major-General Sir G. Martindale comg. the Field Army, put under arrest by me with the sanction of G. Reddie, Esq. Superintending Surgeon at this station, for being drunk in the Hospital on the night of the 22 of July and bleeding a patient while in that state about the hour of half past nine p.m."

Shortly after this begins the end of a chapter. Smet had left England with the regiment in August 1796, and after six years at the Cape of Good Hope, had served in India since the end of 1802 without, according to his letters, having taken any leave whatever. Now, in September 1821, he sees "a fair prospect of being able to get ready by the first of November, to proceed upon sick certificate to Calcutta, and thence to Europe." He applies for a sick leave certificate on the grounds of acute ophthalmia which has troubled him in hot weather for three successive years, and receives:

"I do hereby certify that Mr. J. F. Smet, Surgeon, His Majesty's 8th Rt. Light Dragoons, is in a bad state of health, and I think it highly advisable for him to return to Europe by the first opportunity."

Calcutta,

(Sgd.) JAMES MEIK,

31st December 1821.

3rd Mem. Med. Board.

This is forwarded to the Brigade Major, with an application to take with him as his servant George Connolly, a private of the 8th Light Dragoons who is to be invalided to England, and a request for passage in the East India Company's ship "Princess Charlotte of Wales."

He arranges for receipt and disposal of his pay, and executes a power of attorney in favour of Messrs. Alexander and Co. of Calcutta to manage the 69,400 rupees-worth of East India Company stock which he holds. And so, after little less than twenty years' continuous service in India, he sails on February 23, 1822, on two years' sick leave.

While Smet was on leave, the regiment returned to England, leaving Cawnpore by march route on October 2, 1822, embarking in the "Dorsetshire" on January 11, 1823, disembarking at Gravesend on May 5, and proceeding to Norwich and Ipswich.

During his leave, spent in Guernsey, Smet replies, on August 23, 1822, to a letter from the Army Medical Department dated February 20, 1821, and containing observation on his half-yearly reports of as far back as July 1819. These are answered, and he goes on to express himself "happy to find . . . notice taken of the excessive labour in India which surgeons have to bear . . . the mass of writing to be attended to, or written by the surgeon himself alone is excessive. It refers to a great variety of documents for the Military. Medical

and Commissariat Department in India, exclusive of what is required in the Hospital and for the Europe returns."

November 7, 1823, finds him recalled to duty in consequence of the death of Assistant-Surgeon Carter, and several pages are filled with letters of protest, including a petition to the Commander-in-Chief. But all these are deleted, the petition is marked "Not presented," and nothing remains but two notes saying that he will "set off with the utmost expedition."

Smet rejoined his regiment at Norwich, but at the end of April 1824 he applies for, and is granted, the four months' leave which he had foregone on recall. Assistant-Surgeon Farnden is brought in from detachment to headquarters, and Smet arranges at his own expense for a Militia Surgeon (Nash) to take charge of the detachment in Ipswich. This virtually closes Smet's military career, and the remaining letters are largely concerned with personal affairs—his daughter Louisa (his wife is nowhere mentioned), Crake's orphan son and family financial matters.

Two only call for mention here. One, a long letter of August 1825 to Adjutant Glanville explaining the origins of the Regimental Record Book which he had compiled, stating how when he joined in 1794 there were officers still serving who had entered in 1762 and whose reminiscences, edited by a Captain of Invalids whose father had served in the regiment during the '45 Rebellion, formed the basis of his work. The original of this letter may survive, for passages from it are quoted in Murray's "History of the VIII King's Royal Irish Hussars" published in 1928.

The other, of April 2, 1826, is to his agents, arranging for the drawing of his pension, and enquiring, quite inexplicably in a man who had served for over thirty years in one regiment of cavalry, during which he had seen them converted from Light Dragoons to Hussars, whether he should style himself "Retired Surgeon" or "Half-pay Surgeon of the —th Regiment of Infantry."

The reading of a one-sided correspondence leaves many matters of interest unexplained or unfulfilled, and not least this belated suggestion of an infantry association.

AUTHORITIES

The following have been consulted, in addition to the journals from which the material has been drawn:

Roll of Commissioned Officers in the Medical Service of the British Army. W. Johnston. Aberdeen. 1917.

Historical Records of the British Army: the 8th King's Royal Irish Hussars. R. Cannon. London (Adjutant-General's Office). 1837.

History of VIII King's Royal Irish Hussars. The Revd. Robert H. Murray. Cambridge. 1928.

At Random

PRICKLY HEAT

MILIARIA RUBRA. LICHEN TROPICUS

SURELY never has any disease been so aptly named? To those who have never experienced it the common, everyday layman's name is perhaps an anomaly and may seem a somewhat exaggerated description of a minor tropical complaint which matters little and which the strong minded can ignore.

To those who have experienced it the common name gives a terse and vivid description of this annoying, irritating and sometimes even crippling condition.

To the inexperienced the first onset of the condition is somewhat startling in that apparently without rhyme or reason and certainly without warning the affected parts—small of the back, inner surfaces of the forearms resting on the smooth-topped desk, the thighs and buttocks, the neck confined by an unnecessary stylish collar—start to tingle and prick almost as though attacked by crawling, biting insects. The experienced readily take the warning and commence precautions and treatment which their experience or perhaps even local popular tradition lays down emphatically as being a sure preventative or cure. Unfortunately these often fail.

The inexperienced may well aggravate their condition by violent scratching leading to disruption and infection of the skin and its sweat and sebaceous glands with subsequently a yet more irritating and even crippling of chronic infection—fungoid, staphylococcal and even streptococcal. Even if this *scratching reflex* is valiantly resisted, considerable damage may be done by patent antiseptic soaps, ointments and specially recommended powders.

An official description of the condition is not without humour except to those affected. It is described as an acute form of heat rash associated with excessive sweating in hot, humid climates. And the hardy individual who boasts that he likes the hot weather and plenty of *violent exercise* is somewhat taken aback when a *violent prickling* accompanies that exercise. The official language is that it particularly affects Europeans of *obese diathesis*. The italics are ours.

Who will readily admit to "*an obese diathesis?*"

The textbook wording is:

"Probably it results from a mechanical blockage of the ducts of the sweat glands with keratin or sodden inadequately cornified cells of the stratum corneum. Bacteria and yeast-like fungi have been incriminated, but they are merely only secondary invaders. According to O'Brien, sebaceous deficiency causes physical changes and closure in the keratin ring surrounding the sweat duct; occlusion follows, and rupture

of the sweat duct and the formation of miliarial vesicles ensue: each sweat gland involved is said to remain obstructed for some time after the acute attack has subsided."

The condition "rapidly disappears on leaving the tropics by aeroplane or in cool weather," and popular tradition lays down that the correct treatment is "to stand naked in the rain" . . . when it rains!!

Such comforting advice, isn't it? to those who know that they have been posted for the *whole hot weather in a really hot, humid climate* and it won't rain for another two months.

Actually to stand, naked or even partially clothed, in the rain is refreshing indeed; but the alleviation is brief and the following damp black night under a mosquito net without a fan may readily bring on another attack of the prickles with its consequent loss of sleep.

Although we may not readily admit to an *obese diathesis* it is interesting to note that, much more readily admitted characteristics—the fair skinned, ruddy complexioned, the blue-eyed fair or red-haired type, appear to suffer most easily and quickly from this condition; but even many of these may well remain immune provided they have no tendency to *obesity*.

To those who are inexperienced and about to visit the tropics for the first time an official description may well be of practical use in guiding subsequent diagnosis, precautions and treatment:

"The eruption consists of small glistening, superficial vesicles with a well-marked red areola and inflamed red papules which feel like grains of sand: it may involve the trunk, limbs, forehead and almost any part of the body. The pricking burning sensation and great itching may be sufficient to prevent sleep and secondary bacterial infection may result from scratching. O'Brien records that repeated attacks of prickly heat may lead to extensive sweat-gland destruction and tropical anhydrotic asthenia."

So there it is. When you, O Reader, have it you will know what you have got. You may possibly prevent a recurrence or even achieve a cure.

For prevention the methods are often common sense guided by a knowledge of the causes and mechanism of the condition which have been described above.

For cures there are many claimants. A quiet talk in the "bar" or in the "ladies' lounge" will, after the third gin and tonic, often extract confidentially a most potent favourite secret remedy for the condition.

To those who prefer more *official* guidance the following methods of prevention and cure may well be of use and comfort, mentally and possibly even physically.

"Previous sun-tan, loose clothing and working and/or sleeping in air-conditioned rooms or in the open air reduce the liability to prickly heat. Only light clothing should be worn and when possible it should be changed twice daily. Soap should be used with moderation when washing."

A word of warning to the newcomer on this subject of sun-tan, particularly to those of the alleged weaker sex. Acquire the sun-tan gradually and do not, immediately on arrival in tropical or subtropical climates, lie naked (or nearly

so) glistening with salt water from your swim in the full sun. The resultant burns may be extremely unpleasant and severe. We have seen cases in which individuals were on the S.I. and even the D.I. list for days after severe sun-burn of the whole back.

Sun-tan from a bottle gives little protection or prevention we are given to understand.

Furthermore:

"After a tepid bath the application of corrosive sublimate solution (1/1,000) containing eau-de-cologne is helpful. Alternatively, the following lotion is useful: R/acid-salicyl. gr. xxx; hyd. perchlor. gr. ii; sp. Vini rect. ʒ ii; Aq. dist. ad ʒ vi. Subsequently a dusting powder, such as zinc oxide, boracic acid and starch in equal parts, or boracic acid and menthol affords some symptomatic relief. In chronic cases, O'Brien advises desquamation of the stratum corneum by daily applications of 10 per cent salicylic acid in 90 per cent alcohol for two to three days, followed by inunctions of lanoline twice daily, and later once weekly to restore the lipid deficiency."

May we emphasize for the beginner some of the points given above. Excessive bathing or washing appears to have effect in proportion to the amount of *soap* or/and *hot* water used, i.e. the factors which cause loss of sebaceous secretions and damage to the sweat-gland openings. Even in a large group of Sikhs, Gurkhas and Northern Indian troops we have seen massive prickly heat due to these very causes. Soap should certainly be used in moderation and with restrictions (*see below*) because of the tendency to remove the natural fats and desquamate the skin.

Finally to those who are prepared to try anything new once, even though they are not prepared to be convinced, here are some hints which have often proved successful for young and old over many years' experience. The *young* are particularly mentioned because the very young of the perambulator or post-perambulator stage are so often seen buried in a perpetual turkish bath at the bottom of a pram or cot howling from the thirst induced by profuse sweating and the prickles of the heat rash from that sweating instead of being allowed, as they should be, to lie naked and free to air circulation on the floor or bed.

Tepid or cold baths should be brief and quick. If the prickly heat has started, or even before this, use a weak mercuric or mildly disinfectant soap. Neko proved a good brand to use, but there are others equally efficacious. Lather freely and quickly over the affected or susceptible parts and allow the lather to stay on for two minutes (under a fan if you have one) but *certainly not for more than five minutes*. Wash off and dry the body with quick light friction of a rough towel, standing under a fan or in a draught (not so easy to find sometimes in still breathless pre-monsoon days).

Clothing should be light, not tight and, if practicable, changed when sodden or twice daily. For those who are permanently chair-borne at an office desk an open cane bottomed chair and a double sheet of blotting paper under the forearm on the desk are reasonable measures of prevention.

For prevention and treatment the following powder has proved effective

for many years. Dust it freely over the whole body or on the affected parts once or possibly twice daily (not more).

R/Zinc oxide	}	equal parts.
Powdered talc		
Powdered camphor		

Flowers of sulphur may usefully be added as a fourth constituent.

NOTE.—The camphor *must be powdered*. This is difficult and the dispenser may not like it. Granulated camphor should not be accepted. To prevent loss of the camphor component the mixed powder should be kept in tight-closing receptacles. If properly made and so kept it will last for months. So a half or one pound may well be ordered at one time.

Avoid boracic powders and starch even though the mild acidity obtained is said to be beneficial. Our experience is that boric always cakes, and makes a sticky and irritating mess; while for starch we see no justification whatsoever.

The powder detailed above stimulates and soothes the skin, *keeps it dry and non-adhesive* and cures the sores. The sulphur flowers have apparently an additional use in this respect.

Of course, to those about to visit the tropics who are really anxious to avoid acquiring prickly heat and who are in a position to carry out the advice there is one certain method of prevention. It is similar to the advice offered by "Mr. Punch" to those about to be married: Don't.

But to those who *must* serve and work in the tropics it is hoped that the methods given above in its prevention and cure may alleviate their sufferings from prickly heat.

The bulk of the quotations in this dissertation were taken from and grateful thanks are offered to: "A Text-book of the Practice of Medicine," by Frederick W. Price, in the chapter by Sir Neil Hamilton Fairley. These extracts were supplied by Colonel A. N. T. Meneces, C.B.E., D.S.O.

Travel and History

HEADQUARTERS,
WESTERN COMMAND,
CHESTER.

DEAR MR. EDITOR,

I was shown the other day an interesting letter written by an officer of the Royal Horse Artillery to his mother from the Crimea.

The letter has both medical and military interest and it is notable how occurrences such as loss of kit, lack of books and so on were recorded from the Crimea about a hundred years ago just as they were in home correspondence during the recent Hitler war.

It seemed to me that you might consider a copy of this letter worthy of publication in the Corps Journal. The original is in possession of the writer's daughter and I have her permission to send a copy to you for publication if you think it worthy. I have also her permission to reproduce the full signature of the writer.

Yours sincerely,
(Sgd.) J. M. MACFIE.

I Troop R.H.A.
Sept. 7, 1855.

My dearest Mother.

I have, I am sorry to say, been on the Sick List ever since I last wrote: for, just as my knee began to appear better, I got an attack of Jaundice with which I am now laid up. Please God, I shall be all right in two or three days more.

My knee was opened by our surgeon, but it is now laid up again as, though the original wound is nearly healed, a number of small boils have broken out all round which are very painful and prevent me from making any use of my leg. This our Doctor says, is against my getting well so quickly of the Jaundice. I am nearly starved. The only meat I am allowed is a Quail for dinner though I feel as if I could eat 3 or 4. During the last week there have been a good number about. Major Brandling and 3 other officers shot 22 Brace yesterday in about 3 hours; they are, however, uncertain as a change of wind to-day has driven them all away again.

I often wish I were at home for you and Mary to nurse me. Were it not for the quail, I should get nothing to eat as there is really nothing between fever and full diet here, no luxuries that are often requisite for a person recovering from sickness. I shall be very glad to get about again as I want to have a bang or two at the quail. If my knee were well our Doctor would send me out now as he says a little exercise would do me a great deal of good.

The French opened fire from their Batteries on Wednesday and succeeded in burning one of the Russian Men of War down to the water's edge. We commenced a partial bombardment yesterday; but the regular bombardment opened today. The Russians are hardly firing at all. It is said that the assault is to take place to-morrow, it is nearly certain that something is going on but the Allied chiefs now keep everything so secret that one never knows about anything till it actually takes place. I hope it will succeed (if God will).

The newspapers seem to think that we ought to have taken advantage of the victory of the Tchernaya by pursuing the enemy; but they do not know what they talk about. You will be surprised when I tell you that there are only two practicable roads for an army from this to the north side of Sebastopol. One is by Baidar, a distance of 16 or 17 miles to the East and the other is the one by which the Russians came down from McKenzie's farm and back again. All the ground on both sides of this road are perpendicular

cliffs; in fact it is a causeway cut out of the face of the rock: any of our people attempting to follow the Russians up here would be cut to pieces by the fire of the powerful batteries that they have in position there and which are in fact a continuation of the fortifications of the north side of Sebastopol; added to this the road is very steep and though the Russians could take their time for taking up their artillery while under the fire of their own batteries, every one of our Horses would be shot down before we could get half way.

The cliffs here are much steeper and more precipitous than those at the Alma.

I am rather badly off for Books and wish that Francis' parcel had arrived. I suppose however that it is lost or mislaid long ere this. The Ship with my recovered things on board has arrived but I have not got them yet.

Did you go to Woolwich when you were in England; if so I dare say you saw some of our new Head Dress, I mean for the Foot Artillery? It is rather handsome, a fur cap something like the Horse Artillery but with a plume at the side instead of in front. I believe the price is not quite so much, the H.A. being 9 guineas and this 7½ guineas. I shall write to Papa per next mail relative to his working what interest he has towards getting me reappointed to the Horse Artillery.

I suppose Francis will be having a rap at the Leitrim partridges about the time that you get this, that is if he has time to spare from his money making profession. I feel fully sure that he will be Lord Chancellor of Ireland some day if he goes on at this rate. At all events I expect he will be a much greater man in his profession than I am ever likely to be in mine. A Brevet Majority and Companionship of the Bath is the height of my expectations. I hope, however, that the war will be over before I have had time to get it; I must say that since I have been out here my ambition has greatly lessened; not that I should not be still glad to get anything that was going, but if I did not get it, I should not be very likely to annoy myself much on that account.

News just came from the front that two more ships are on fire, it seems to me to be uncertain whether it is caused by the fire of a Battery built by the French for that purpose, or whether the Russians are not destroying them themselves. The fire has been very heavy all day. A Polish deserter has come in and says that the Russian generals were holding a Council of War as to giving up the South Side: he also said that the place was in a fearful place from the number of dead and dying about the streets. The fire tomorrow morning is to be twice as heavy as ever it has been before and it is believed that about noon something will take place.

I must now say goodnight with best love to Papa and Mary.

Believe me, yr affect Son,

THOMAS L. DAMES.



Correspondence

MEDICAL DIRECTORATE, HEADQUARTERS.

BRITISH ARMY OF THE RHINE,

B.A.O.R. 1.

May, 1, 1951.

DEAR SIR,

I have read with considerable interest an article in the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS of 1950, No. 1, Vol. XCVI, titled "The Promotion and Maintenance of Mental Health in the Military Community," Part I.

Some points in this paper cannot be accepted without criticism. I wish to emphasize the following:

(1) There is no significant correlation between illiteracy and low intelligence. The former is dependent on education, the latter on an innate capacity to learn. Illiterates *per se* are never referred to Psychiatrists.

(2) Potential "healthy" carriers of pathological organisms have no correlation with low intelligence.

(3) Those with an intelligence ratio of SG5 or SSG5 can only be employed on duties such as Messes, Kitchens and Dining Halls, etc. The standard of personal hygiene of these can be kept as high as those with normal intelligence by limiting the numbers so employed and by allocating them to restricted duties.

(4) Psychopathic personalities with anti-social trends amongst recruits are never accepted into the Army when such a diagnosis is made by a psychiatrist. If discovered amongst enlisted personnel such are boarded out on medical grounds and nearly all are clinically responsible in Law for their behaviour.

It would be interesting to know how the writer would improve the Law to protect society against these individuals.

(5) The Army consists of three categories of other rank personnel, i.e. those called up for National Service, Regulars and those Re-enlisted. Many National Service recruits have anti-social trends with histories of being in Approved schools, Bound over, on Probation or in Borstal Institutions. Statistics prove that 40-60 per cent of such make good soldiers and useful citizens. Such personnel should not be allowed to evade their duties to their country because they have been in the hands of the Law. Many render good service and leave the Army with a clear record, proud of their achievement and enthusiastic to be good citizens.

(6) Many personnel deliberately show their dissatisfaction with Army service by misconduct but such can be detected by experienced psychiatrists. Such should never be discharged medically but be disposed of administratively under A.C.I. 650/46, Part I "Misconduct."

(7) The nine unstable personality types described by the writer are *gross* types and as such are rare. The majority of individuals in the Army and the civilian population are made up of a symposium of all these types with one or two predominating characteristics.

(8) Obsessional neurosis is probably the rarest psychiatric disability in the Army, while personalities with obsessional traits are common.

(9) Prevention of mental ill-health is primarily dependent on a wide knowledge and experience of clinical psychiatry. Generalizations unfounded in substance and experimental evidence only confuse and impede knowledge.

Yours sincerely,
 LT.-COL. J. T. ROBINSON,
Adviser in Psychiatry,
H.Q., B.A.O.R.

WHAT IS WRONG WITH THE "JOURNAL"?

SIR,

Recent correspondence regarding, and your appeals for support for, the Journal lead one to wonder whether it can be advantageously continued in its present form.

Since its divorce from the *News & Gazette* there seems to be little doubt that it is mainly only of interest to those employed on professional duties in the Corps and indeed, of these, to Specialists in various subjects.

It is true that of late there has been a welcome reappearance of articles and discussions on medical administrative problems and subjects, but these are few and far between and in a small minority as compared with the (sometimes unfortunately abstruse) specialist professional contributions.

Your readers nowadays could probably be divided roughly into four categories, excluding those outside the Corps:

- (a) Specialist professional officers who are interested in the type of article now filling your pages.
- (b) Administrative officers, mostly fairly senior, interested in the development of medical administration and tactics in the modern Army.
- (c) Young medical officers, regular or otherwise, to whom such contributions as "medical notes," "abstracts" and articles on the more ordinary professional problems within and without the Service are really of the most value.
- (d) Retired officers to whom perhaps Corps "news" is the main item of interest.

Can the Journal, as at present constituted and produced, be considered to cater for all the above? As a regular reader for more than thirty years I think *not* for the following reasons:

In the case of (a) and (c) above *equal*, if not better, value can be obtained from lay medical publications, particularly as regards the non-regular officer returning to civil practice.

In the case of (b) the required material is obviously insufficient while the *News & Gazette* is of more interest to (d).

What then is the solution?

While not presuming to suggest any such as obvious or for immediate action may I put forward the following as a basis for discussion both in your editorial circles and among your readers:

Firstly, is the Journal to continue as a so-called Corps "Magazine" on the lines of those of other Regiments and Corps or should it be confined to the purely professional aspect?

If the former, then re-amalgamation with the *News & Gazette* seems desirable in order to produce more subscribers, particularly from those in category (d) above.

If the latter, the standard *and variety* of contributions must be such as to compete with lay medical publications: this may be difficult if not impossible to attain though amalgamation with other Service medical journals might be worthy of consideration.

Secondly, failing either of the above tentative suggestions, can more be done to encourage the senior administrative officer on the one hand and the young medical officer on the other to provide more material? In this line more perhaps could be done in the way of encouragement and suggestion on the part of Administrative and Commanding Officers: the former might invite and encourage articles on medical staff exercises and T.E.W.T.s while the latter might do the same in connexion with interesting clinical material problems in hospitals and smaller medical units.

Thirdly and lastly, both the above-mentioned types of contributors might be *encouraged* to air their views and put forward their suggestions regarding *any* Corps problems or difficulties: the subjects concerned may be legion and might include anything from "the proper use of medical man-power" to "Mess dress and etiquette," but it should be emphasized that such contributions are *invited* and not discouraged, even in the case of the most junior officer, by Superior Authority, subject of course to normal discipline.

I am, etc.,

"REGULAR READER."

CRITICAL SUGGESTIONS FOR THE "JOURNAL OF THE ROYAL ARMY MEDICAL CORPS"

H.Q., BRITISH TROOPS BERLIN
B.O.A.R. 2.

April 24, 1951.

SIR,

To achieve the cut and thrust of debate and maintain topicality of the correspondence, would it not be possible for serving officers to write direct to the Editor as is the case with correspondence to the *Journal of the Royal United*

Service Institution and not have to forward it through the usual channels?

The relevant extract of the Secretary's Notes of the *Journal of the Royal United Service* is appended:

"The Editor is authorised to receive articles from serving officers and, if found suitable, to obtain permission for their publication from the appropriate Service Department.

"Army Officers are reminded that such articles must be accompanied by the written approval of the author's Commanding Officer."

I am, Sir,

Yours faithfully,

F. G. NEILD,

Major, R.A.M.C.

EDITOR'S NOTE

During the past year numerous written or verbal requests have been addressed to individual members of the Corps; to Consultants, Directors and heads of Departments and Commands; and to some retired officers for articles and any material suitable for the *Journal*.

The results from some, including "Regular Reader," have been most encouraging and have been gratefully used in our monthly numbers with, we believe, definite appreciation by our readers. The results from others have been completely negative.

MEDICAL HISTORY

WHILE reading War Diaries and Quarterly Reports of Medical Units and the Medical Branches of Formations in connexion with the Medical History of the War—the Campaign in Italy—we had the pleasure of perusing the Quarterly Reports of the Canadian Corps at three stages of that campaign.

The quarterly reports were beautifully prepared and they contained narratives strikingly clear, concise and informative. In fact, so striking were the three reports that we ventured to send a letter to the D.D.M.S. whose signature appeared thereon complimenting him on these very fine quarterly reports and saying what a pleasure it had been to read them and how useful they had proved.

A reply was received from Brigadier McCusker, who now appears to have forsaken Military Medicine for higher spheres. We venture to reproduce this reply as being of probable interest to many who knew the Canadian Corps.

MINISTER OF NATIONAL HEALTH AND WELFARE
OFFICE OF THE PARLIAMENTARY ASSISTANT
CANADA

April 17, 1951.

DEAR . . .

Your extremely kind letter of a few weeks ago has made me very happy. I was fortunate in having with me, in Italy, a splendid staff who approached

their work with enthusiasm and took pride in its quality. I feel, therefore, that I must share your kind congratulations with them. This is especially so in the case of Major Frank Ship, who was my Deputy at that time, and who is now an Orthopædic Surgeon in the Leahy Clinic in Boston.

A few years ago I entered political life. I represent Regina City in the Federal House and am now Parliamentary Assistant to the Hon. Paul Martin, Minister of National Health and Welfare, a position which I find very interesting.

Thanking you once more for your kind reference to my work.

Sincerely,

E. A. McCUSKER, M.P.,

Parliamentary Assistant.

Matters of Interest

HONOURS AND AWARDS

WE read with particular pleasure of recent honours bestowed on officers of the Medical Services. Captain C. W. Bowen, R.A.M.C., R.M.O. to the 1st Battalion the Royal Northumberland Fusiliers, has been awarded the Military Cross for gallantry in action in Korea. Captain Bowen is a recalled reservist.

In the Order of St. John of Jerusalem, Major-General F. Harris, C.B., C.B.E., M.C., M.B., K.H.S., late R.A.M.C., Major-General W. E. Tyndall, C.B., C.B.E., M.C., M.B., D.P.H., late R.A.M.C., and Brigadier Dame Anne Thomson, D.B.E., R.R.C., K.H.N.S., Q.A.R.A.N.C., have been appointed Officers and Major S. Mackenzie, O.B.E., R.A.M.C., has been appointed a Brother.

Brigadier J. C. Collins, until recently D.M.S., Far East Land Forces, has been promoted from Officer to Commander of the Order of the British Empire. Captain G. C. Smart, R.A.M.C., who is a staff-captain (hygiene) in Malaya, receives the M.B.E. Three officers were Mentioned for services in Malaya between July and December 1950: Major J. H. Bennett, M.B., R.A.M.C., who is a D.A.D.A.H. in Malaya; Major T. F. Jouning, T.D., R.A.M.C., the Registrar of a hospital; and Captain J. T. Rowling, M.B., R.A.M.C., a National Service officer who is a surgeon with a field surgical team.

AN ACT OF GALLANTRY

LIEUTENANT G. ANDERSON, M.B., R.A.M.C., who is employed at the B.T.A. Training Centre, was conducting the normal sick parade at 1700 hours on March 28, 1951, when he received a message from the Zirbitz Weather Station that the

official in charge was seriously ill. On finishing his parade, Lieutenant Anderson set out with an Austrian mountain guide and a gendarme to answer the call. The Weather Station is at the top of Zirbitzkogel (2,394 metres). The climb to this peak even in daylight and with good weather conditions is considered to be the stiffest in the area. When Lieutenant Anderson and his companions set out the light was failing and the weather conditions, which had been bad all day, were deteriorating. There was also a danger of avalanches.

The guide lost the way in the blizzard which was blowing at the time, and the party was in danger of becoming casualties from exposure. Luckily they happened upon the cross which marks the summit, a few metres from the Weather Station hut. Lieutenant Anderson was fully aware of the difficulties and danger of the climb, but although he had learned to ski only this winter he faced them unhesitatingly.

RENAMING OF HOSPITAL

THE British Military Hospital, Malta, has been renamed "the David Bruce Military Hospital, Imtarfa," in honour of that distinguished officer of the Royal Army Medical Corps who did so much work in Malta on undulant fever. This follows the renaming of the Army Vaccine Laboratory as the David Bruce Laboratory.

APPOINTMENTS

COLONEL R. S. DICKIE, M.B., late R.A.M.C., has been appointed Civil Defence Instructor at the Civil Defence School in Perthshire.

Colonel K. McNeill has been posted from the Q.A. Military Hospital to 3 Infantry Division as A.D.M.S.

Lieut.-Colonel A. N. T. Meneces, *C.B.E.*, *D.S.O.*, *F.R.C.P.*, has been appointed Consulting Physician, Royal Army Medical College. This appointment carries the rank of Colonel.

Colonel D. Gordon Cheyne has been appointed as the medical representative to the Joint Intelligence Bureau in place of Major A. B. Dick who has joined the Senior Course at the R.A.M.College.

RETIREMENTS

MAJOR-GENERAL W. E. TYNDALL, *C.B.*, *C.B.E.*, *M.C.*, *M.B.*, *D.P.H.*, retired on January 28, 1951, after serving in the Army for over thirty-six years. He was commissioned in the R.A.M.C. at the beginning of the first World War, when he saw service with the B.E.F. Between the wars he served in India, Germany (where he was D.A.D.P.), West Africa and China, with periods in the United Kingdom, when he held appointments as Instructor at the Chemical Warfare School, Winterbourne Gunner and as Officer in charge, R.A.M.College Vaccine

Department. At the outbreak of the Second World War he was Training Officer (Anti-Gas) at the Depot, and subsequently became D.D.M.S. G.H.Q. Home Forces and later D.D.G. A.M.S. (Ops.) at the War Office. In 1945 he went to the Far East as D.M.S. A.L.F.S.E.A. and returned in 1948 to take up his last Army appointment as D.D.M.S. Southern Command. He was a member of the Hartgill Committee on Re-organisation of the Medical Services and chairman of the Committee on Future Conditions of Service for Non-Medical Officers of the R.A.M.C. Our good wishes go with him in his retirement.

Brigadier H. T. Findlay, M.B., B.Ch., D.P.H., retired on April 30, 1951. He had been seconded to the Ministry of Defence since 1949 when he relinquished the appointment of Director of Pathology at the War Office. He was commissioned in the R.A.M.C. in 1915 and served in U.K., the Irish Free State, France and Belgium. After the first World War he was stationed in West Africa and India and at home was in charge of the Vaccine Department at the College. He also held appointments as D.A.D.M.S. and D.A.D.P. Early in the 1939-45 War he became O.C. Emergency Vaccine Laboratory and later went to the Middle East as D.D.P. He was appointed Director of Pathology at the end of 1946. He continues to take an active part in pathological work in the Public Health Laboratory Service.

Major-General O. W. McSheehy, C.B., D.S.O., O.B.E., M.R.C.P., has relinquished the appointment of Colonel-Commandant of the Royal Army Medical Corps and Major-General J. C. A. Dowse, C.B., C.B.E., M.C., M.B., has been appointed in the vacancy thus made.

Colonel L. Handy, late R.A.M.C., who commands the Cambridge Hospital, Aldershot, having reached the age limit for retirement is retained on the Active List supernumerary to establishment.

PROMOTION

LIEUTENANT-COLONEL H. E. KNOTT, O.B.E., M.D., who is Commandant of the Army School of Health, has been promoted to Colonel.

CASUALTIES

We have learnt with great regret of the following casualties amongst R.A.M.C. officers in Korea:

Capt. A. M. Ferrie—reported missing January 3/4, 1951, at Chaegunchyon, believed P.o.W.

Capt. R. P. Hickey—reported missing April 25, 1951, South Bank of River Imjin, believed P.o.W.

Capt. T. Dungavel—wounded April 25, 1951, south of River Imjin.

Capt. D. R. Patchett—reported missing in Korea, April 29, 1951, believed P.o.W.

THE 50TH SENIOR OFFICERS' COURSE—ROYAL ARMY MEDICAL COLLEGE

This commenced on Monday, April 23, 1951—the following Officers formed the class for this course:

<i>P/No.</i>	<i>Substantive Rank</i>	<i>Name</i>
122729	T/Lt.-Col.	Lamb, W. R.
87858	Major	Dick, A. B.
73561	Major	Dunkerton, G. H. H
112038	Major	Gray, R. J.
225719	Major	Heald, I. N. S.
87778	Major	Hooper, F. J. W.
125327	Major	McLaughlin, J. H.
90097	Major	Topping, R. A. R.
380060	T/Major	Brown, J. A. H.
270069	T/Major	Voller, J. J.
Burma Army	Lt.-Col.	Latchmapathy
Burma Army	Capt.	Hla Han
Pakistan A.M.C.	Lt.-Col.	S.M.Q. Huda
Arab Legion	Dr.	Abu Gosh
R.C.A.M.C.	Major	Edwards, L. H
ZM. 2313		

EXCHANGE OF R.A.M.C. OFFICERS WITH THE U.S. MEDICAL CORPS

IN 1950 it was agreed with the Surgeon General of the U.S. Medical Corps that there would be an exchange of specialists between the R.A.M.C. and the U.S. Medical Corps. As a result of this agreement two R.A.M.C. specialists were selected. They were Major J. P. Baird, M.R.C.P., Medical Specialist, and Major H. C. Jeffrey, Specialist in Pathology. Major Baird has been stationed at the Brooke Army Hospital, Fort Sam Houston, Texas, and Major Jeffrey at the Fitzsimmons Army Hospital, Denver. These officers have completed their year's exchange and are now returning to the U.K.

The U.S. Medical Corps officers who have been employed in military hospitals in this country in exchange were Lieut.-Colonel W. H. Crosby at the Q.A. Military Hospital, Millbank, and Major E. R. Keilman at the Leishman Laboratory, Aldershot.

Colonel Robert R. Kelly (Ophthalmologist) and Major Robert W. Lackey (Radiologist) of the U.S. Medical Corps have been selected to take the place of the two previous officers.

It has now been agreed that the number to be exchanged will be increased to four officers in any one year, and the following officers have now been selected to proceed to the United States: Major J. R. Kellett, M.B.E., Specialist in Radiology and Major R. M. Hector, Specialist in Pathology. Steps are now being taken to select two further specialists to proceed to the United States. It has been ascertained that there is at present no opportunity for specialists

in Obstetrics and in Army Health to exchange with specialists from the U.S. Medical Corps.

LIEUT.-COLONEL J. M. MATHESON, who has been the British Medical Liaison Officer to the Joint Staff in Washington since 1948, has been relieved by Lieut.-Colonel J. M. Denning, and has now returned to the U.K.

Lieut.-Colonel Matheson carried out a four months' surgical rehabilitation course in the Walter Reed Hospital, Washington, and will be appointed as surgical specialist to the Military Hospital, Chester.

A GUEST NIGHT for Ladies was held at the Headquarter Mess on April 25, 1951.

Amongst the guests were the Countess Mounbatten of Burma; the Countess of Limerick; Lady Slim; Professor Hilda Lloyd, President of the Royal College of Obstetricians and Gynæcologists, and Mrs. Bryans, Director of Welfare, B.R.C.S. There were a large number of wives and private guests of officers.

The D.G.A.M.S. in proposing the health of the ladies said that it was, as far as he knew, a unique occasion to have a Guest Night for ladies, but he considered that the Corps owed so much to the distinguished ladies who were present as Mess guests that he felt it was a very suitable way to show the Corps' appreciation for what they had done. Lady Mounbatten, the D.G. said, knew more about the military hospitals at home and overseas than any officer in the Corps, not excepting himself, because Lady Mounbatten had recently seen more of the hospitals in the Middle East than he had. He said he was quite sure that her tour notes should be forwarded to the War Office. He mentioned the outstanding work which Lady Mounbatten had carried out during the war in Burma and the Far East and reminded them that she was the first to visit the prisoner of war camps in Siam and Malaya after hostilities ceased. He went on to mention the splendid work which was done by the Red Cross and St. John Welfare workers who were now an institution in every one of our military hospitals except those in West Africa, and he paid tribute to the good work which had been done by Mrs. Bryans as their director. The D.G. then referred to the close association with the British Red Cross Society and with Lady Limerick who was the Chairman of the V.A.D. Standing Committee. By the creation of the Q.A.R.A.N.C. Other Ranks it was now possible for V.A.D.s to join the T.A. units as Q.A.R.A.N.C. Other Ranks, and he hoped that the conditions of service and training would be acceptable to them. To Professor Hilda Lloyd the D.G. said that he hoped it would be possible to come to an arrangement by which obstetricians in the Corps could obtain not only the D.R.C.O.G. but the M.R.C.O.G.

Lady Mounbatten, Lady Limerick and Professor Hilda Lloyd all responded with a series of brilliant and entertaining replies.

THE WARRANT OFFICERS AND SERJEANTS R.A.M.C. CLUB

THE Annual Dinner of the Warrant Officers and Serjeants R.A.M.C. was held on Saturday, April 14, at the Palmerston Restaurant. There was an attendance of approximately 140 and the Chair was taken by Serjeant-Major G. M. Green of the R.A.M.C. Depot.

The D.G.A.M.S.; Lieut.-General Sir Treffry Thompson, the representative Colonel Commandant; and Colonel T. I. Dun, Officer-in-Charge Records were the official guests and other guests included Major-General J. Wren, Director, Army Dental Service, Major-General Tomory and Major-General F. R. H. Mollan.

The D.G.A.M.S. proposed the health of the Corps. In his speech the D.G.A.M.S. referred to the proposed changes in the commissioning of non-medical officers which had been advocated by the Tyndall Committee. A stage had now been reached when further proposals were being circulated to the War Office branches concerned and a good deal of headway had been made. He said that he was particularly anxious that N.C.O.s should be able to continue right up to commissioned rank in their technical branch. In this way the efficiency of the Corps would be materially enhanced and we would obviate the danger of losing many of the senior N.C.O.s and Warrant Officers who could at present have no prospect of continuing their technical speciality while serving.

The D.G.A.M.S. then gave a résumé of the Corps activities in the past year and ended by saying that he regarded the future prospects favourably and that the Corps could offer a fine career.

A MEMORIAL SERVICE was held at St. James's, Spanish Place on Monday, April 16, 1951, for Major-General J. H. Higgins, late Director of Army Dental Services.

Amongst those present were the D.G.A.M.S. and Lady Cantlie, Major-General F. Harris, Major-General K. A. M. Tomory, Major-General F. R. H. Mollan, Major-General O. W. McSheehy, Major-General R. E. Barnsley, Major-General J. Wren, D.A.D.S., Mrs. Wren, Major-General A. B. Austin, Colonels Duguid, Pearson, Gibson, Muil, Cowie, Purnell, Brazener, McCallum and Charles, and Air Commodore G. A. Ballantyne, Director of Dental Services at the Air Ministry.

WILLS AND BEQUESTS

LIEUT.-COLONEL CUTHBERT GERRARD BROWNE, C.M.G., D.S.O., who died February 27, 1951, left £119,430 (duty paid £61,047).

Major-General Cecil W. Mainprise, Commandant Royal Army Medical College, of Landfall, Reading Road, Fleet, Hants, left £16,130 (duty paid £1,429).

At the Harveian Dinner held at the Hyde Park Hotel on Thursday, May 10, under the Chairmanship of Mr. W. E. Tucker, the guests included the Directors-General of the Royal Navy, the Army, and the Royal Air Force.

The toast of the Harveian Society was proposed by Mr. L. Amery, C.H., and the reply to the toast of the guests was made by Sir Alexander Maxwell.

THE Dinner of the Proctological Section of the Royal Society of Medicine was held at Claridges Hotel on Wednesday, May 9, under the Chairmanship of Sir Heneage Ogilvie. The Director-General of the Royal Navy, the Army, and the Royal Air Force were among the guests, and the Director-General of the Royal Navy responded to the toast of the guests.

THE D.G.A.M.S. attended the General Meeting of the Council of the Forces Help Society held on May 7.

THE D.G.A.M.S. inspected the Depot and Training Establishment R.A.M.C. on Friday, May 4, and the R.A.M.C. and W.R.A.C. Records on Wednesday, May 16.

AN A.A. Command Medical Exercise was held at the Army School of Health, Mytchett, on April 21 and 22, under the direction of Colonel Crockford, D.D.M.S. A.A. Command. The D.G.A.M.S. and Major-General Mitchener attended the exercise together with the A.D.s.M.S. of Groups, S.M.O.s of Brigades, and R.M.O.s of A.A. Command.

THE D.G.A.M.S. was a guest at the Royal Naval Club Dinner, which was held at the Trocadero on Friday, April 20, 1951.

THE finals of the Stanley Shield (B.R.C.S.) were held at the Friends House, Euston Road, on Saturday, April 21, 1951. Lieut.-Colonel Shipman, R.A.M.C.

and Major Dunkerton, R.A.M.C., took part in the judging and the D.G.A.M.S. was amongst the distinguished crowd of spectators.

CONFERENCE

THE Director-General has been invited to become a Deputy President of the Professional Nurses and Midwives Conference, which is to be opened on October 15, 1951, by the Lord Mayor of London.

A WOUNDED SOLDIER FLIES HOME FROM KOREA

(By Captain A. B. Hayter, Military Observer in Korea)

Seen off by Wells Nursing Officer

PICTURED here leaving the British Commonwealth Hospital, Japan, to commence the 12,000 miles flight to England, is a battle casualty of the Korean War, being made comfortable by a Nursing Officer, Q.A.R.A.N.C. before his departure to the Airfield.



The patient, who was wounded while fighting with the Gloucestershire Regiment in an attack against the Chinese Communists in Korea, will be flown home in easy stages by R.A.F. Hastings aircraft. Air evacuation for seriously wounded is part of a new scheme, introduced by the Medical Authorities, which helps to hasten recovery of patients by being cared for in their own surroundings.

WAR OFFICE GENERAL VISITS BRITISH HOSPITAL IN JAPAN

(By Captain A. B. Hayter, Military Observer in Korea)

LIEUT.-GENERAL SIR RICHARD GALE, Director-General of Military Training, after his tour of Commonwealth Units in Korea, is pictured here being greeted



at 29th British General Hospital in Japan by the Commandant of the hospital, Lieut.-Colonel J. E. Snow, O.B.E., R.A.M.C., and (centre) Colonel C. W. Nye, ED., R.A.A.M.S., Assistant Director Medical Services of the British Commonwealth Forces in Japan and Korea.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library.

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health & Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Sante, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Sante Militaire, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Services, London Hospital Gazette.

Obituary

Colonel GEORGE SMITH WALLACE

SUDDENLY in his home, Belgravia House, Palace Road, East Molesley, Surrey, on April 26, 1951, Colonel George Smith Wallace, *O.B.E.*, late *R.A.M.C.*, Retired, *M.B.*, *D.P.H.* Born August 18, 1878, he took the *M.B.* Glasgow in 1901 and the *D.P.H.*, *R.C.P.S.* London in 1904. Having served as a Civil Surgeon one year and thirty-six days he was commissioned Lieutenant, *R.A.M.C.*, January 31, 1905. Promoted Captain July 31, 1908, Major October 15, 1915, Lieut.-Colonel August 28, 1928, Brevet Colonel August 16, 1933, and Colonel August 14, 1934, he retired August 18, 1935.

He was *D.A.D.M.S.* India June 21 to September 30, 1919, *D.A.D.M.S.* Eastern and Shire Areas March 5, 1922, to March 17, 1924, *A.D.* Hygiene India October 10, 1927, to November 1, 1928, and Professor of Hygiene *R.A.M.* College September 1, 1933, till retirement. During 1930-31 he was Commandant of the Army School of Hygiene, Aldershot.

After he retired he was Home Office Medical Instructor Air Raid Precautions.

He took part in the operations in the Transvaal in 1901 and 1902, receiving the Queen's Medal with three Clasps.

In the war of 1914-18 he served in India and South Persia being mentioned in despatches and receiving the General Service Medal and the medal with Clasp South Persia.

He again saw service in the Third Afghan War being mentioned again in despatches and receiving the medal with Clasp.

He also served in the Waziristan and Mahsud Expeditions 1919-20 (as *D.A.D.M.S.* October 1, 1919, to January 19, 1921), being mentioned in despatches and receiving the *O.B.E.* and two Clasps.

A very sound officer on whom his superiors could thoroughly rely.

J. G. F.

Having served with George Wallace and under his command at the Army School of Hygiene I would like to pay some tribute to his memory.

He was a keen, very enthusiastic Hygiene-officer and a zealous supporter of the professional side of the Corps. Appearing severe, hard and unsympathetic he was, with all, just and reasonable and in cases of real difficulty and distress very far from being unsympathetic. A strict disciplinarian, he took immense trouble over the reasonable well-being of all ranks of his staff and the numerous classes of men from all services who passed through the School. It was his keenness for the work of the School and the need for thorough training of all ranks in the arts and practice of field hygiene which made him appear hard and strict. He hated to see time wasted and any slackness in performance of duty. A hard worker himself with sound knowledge and views he considered that

everyone should do a *real day's work* (an attitude which would be of great advantage to the country *at present in many grades of labour*), and consequently he noted and appreciated the work of all who really did their job and were keen on the Corps and the Service.

T. O. T.

Captain GEORGE THOMAS BRAY

ON May 3, 1951, Captain (Q.M.) George Thomas Bray, *M.B.E.*, Retired, of 42, Headstone Road, Harrow.

Born July 9, 1871, he enlisted November 9, 1894, and was commissioned Quartermaster and Hon. Lieutenant R.A.M.C. August 12, 1914.

He was promoted Q.M. and Hon. Captain August 12, 1917, received the *M.B.E.* June 3, 1926, and retired July 9, 1926.

He served in France August 26, 1914, to August 9, 1920, being mentioned in despatches and awarded the 1914 Star, British War and Victory Medals.

J. G. F.

Lieut.-Colonel FREDERICK WILLIAM LAMBALLE

IN York on May 5, 1951, Lieut.-Colonel Frederick William Lamballe, R.A.M.C., M.B., Retired.

Born in Weston, Durham, December 9, 1873, he took the M.B.Durham in 1900, and was commissioned Lieutenant R.A.M.C. June 27, 1901. Promoted Captain June 27, 1904, and Major March 27, 1913, he was placed on half-pay owing to ill-health December 19, 1914, to August 18, 1915. Promoted Brevet Lieut.-Colonel June 3, 1917, he retired on account of ill-health April 2, 1921.

He was brought to notice for valuable services rendered in connexion with the war in the list published February 24, 1917, and received the Brevet of Lieut.-Colonel June 3, 1917.

J. G. F.

Major FREDERICK POWLETT RANKIN

IN Glasgow on May 19, 1951, Major Frederick Powlett Rankin, *O.B.E.*, M.B., R.A.M.C., Retired.

Son of the late Mr. P. P. Rankin, of Glasgow, he was born November 26, 1889, and took the M.B.Glasgow, in 1914.

Commissioned Lieutenant R.A.M.C. (T.F.) October 20, 1914, he was appointed to a regular commission January 1, 1917.

Promoted Captain April 20, 1918, he retired with the rank of Major receiving a gratuity November 22, 1921.

He served in Gallipoli from July to November, 1915, and till the cessation of hostilities in Egypt and with the Egyptian Expeditionary Force.

He was mentioned in despatches and awarded the *O.B.E.*, 1914-15 Star, British War and Victory Medals.

J. G. F.

Notices

TOBRUK 41

THE Fifth Annual Officers' Dinner will be held on November 23, 1951, at the Connaught Rooms, Great Queen Street, Kingsway, London, W.C.1.

The cost of tickets will be £1 1s. per head exclusive of drinks.

Applications for tickets should be made to:

Major-General C. E. N. Lomax, *C.B., C.B.E., D.S.O., M.C.*,
7, Pittville Crescent,
Cheltenham, Glos.

MEDICAL FILMS

THE LYMPHATIC SYSTEM. Cat. No. M.25. Running time: 45 mins. 16 mm. Colour.

The film demonstrates, by means of animated diagrams and living animal preparations, the essential features of the physiological anatomy of the lymphatic system in the rabbit, cat, dog and monkey. After a historical introduction showing Asellius's anatomical diagram of the lacteals and a diagram concerning lymph formation, the classical method of demonstrating lymphatics by interstitial injection of dye is shown in the rabbit and man.

A series of demonstrations then follow showing: the lymphatic pathway in the hind-limb of the dog by cannulation of the lymph vessel and injection of dye into the pad of the foot; the cervical pathway by dropping dye on to the nasal mucosa of the dog, cat and monkey and recording the gradual coloration of the clear lymph in a cannula inserted into the vessel; the passage of dye from the subarachnoid space to the deep cervical vessels is shown in a similar manner; passage of dyes from the blood stream to the lymph and the Brownian movements of chylomicrons.

The film concludes with two animated diagrams, one showing the source and circulation of lymph and lymphocytes, while the other demonstrates the course taken in man by the subcutaneous lymph from the big toe to the blood stream.

FUNCTIONS OF CAROTID SINUS AND AORTIC NERVE. Cat. Nos. M.26 and M.27.

Made in collaboration with the Department of Physiology, University College, London.

This film is in two parts, each complete in itself. They are: Part I—Pressoreceptors and Part II—Chemoreceptors.

Part I.—Pressoreceptors. Cat. No. M.26. Running time: 38 mins. 16 mm. Colour.

This film begins with Czermak's observations in 1866 and passes on to the effects on blood pressure of clamping the carotid arteries with and without section of the depressor or aortic nerves.

The anatomy and histology of the carotid sinus is then demonstrated on the living animal and by diagram. This is followed by a similar series of demonstrations showing the anatomy of the aortic arch, the carotid sinus nerve and its embryological development, the aortic nerve and the histology of the carotid sinus nerve.

Stimulation of the aortic nerve—the effect on the blood pressure and heart of stimulation of the rabbit aortic nerve is shown. This is repeated after cutting the vagi thereby producing a fall in blood pressure which is not accompanied by any appreciable slowing of the heart. The fall in blood pressure on stimulation of the aortic nerve is also shown in the cat.

Stimulation of the carotid sinus nerve—comparable results in the cat are shown following stimulation of the carotid sinus nerve. Elimination of the effect on the heart-rate after double vagotomy is also demonstrated.

Perfusion of the isolated carotid sinus preparation—the experimental set-up and the perfusion equipment together with its oxygenator is demonstrated.

The dramatic fall in arterial pressure and the slowing of the heart-rate resulting from a rise in the perfusion pressure of the carotid sinus preparation in the dog is then shown. This is followed by a further demonstration to show that the carotid sinus reflex mechanism does not come into operation until a certain threshold pressure has been reached.

The film concludes with a diagrammatic re-interpretation of Czermak's classical experiment and a diagram summarizing the relationship between receptors, centres and peripheral effector organs.

Part II.—Chemoreceptors. Cat. No. M.27. Running time: 33 mins. 16 mm. Colour.

After a short historical introduction the anatomy of the carotid body is demonstrated in the dog. The histology of the carotid body and the anatomy of the aortic body is demonstrated by means of diagrams. A series of simple demonstrations of the functions of the chemoreceptors is then presented.

Effects of excess carbon dioxide—the experimental arrangements enabling different gas mixtures to be administered to a cat are shown. The effects of breathing 3 per cent, 6 per cent and 9 per cent carbon dioxide in air before and after denervation of the chemoreceptor areas are then presented to show that the carbon dioxide tension in the blood stimulated the respiratory centre reflexly via the chemoreceptors and by a direct action on the respiratory centre.

Effects of changes in hydrogen-ion concentration—these effects are shown by an intra-arterial injection of lactic acid.

Effects of oxygen lack—the demonstration shows that a mild degree of oxygen lack produces a slight but persistent respiratory stimulation, while an intensification of the oxygen lack shows a more vigorous respiratory response. The same experiments are repeated after denervation of the chemoreceptor areas, thereby demonstrating that after chemoreceptor denervation oxygen lack only produces respiratory failure without any preceding phase of respiratory stimulation.

Effects of cyanide injection—cyanide affects the respiratory mechanism in a similar way as oxygen lack. This is demonstrated before and after chemoreceptor denervation. The stimulation of respiration following lobeline and acetylcholine injection is also shown. The abolition of this response by denervation of the aortic and carotid chemoreceptors is demonstrated in each case.

Electrical stimulation of the carotid chemoreceptors—the effects are demonstrated on the cat under chloralose anaesthesia.

Chemical stimulation of aortic body chemoreceptors—the functional localization of the aortic chemoreceptors is shown by the injection of lobeline through a cannula introduced below the level of the aortic semilunar valves.

The film concludes with an animated diagram recapitulating the main conclusions which can be drawn from the demonstrations presented.

LIVINGSTONE'S 1951 CATALOGUE

THIS Catalogue has just appeared and a copy will be gladly forwarded to anyone interested. 16-17, Teviot Place, Edinburgh.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 payable in advance. Single copies, 2s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

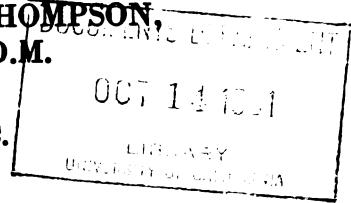
EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS



	PAGE		
ORIGINAL COMMUNICATIONS		Dermatology in Singapore. By Major KEMBLE GREENWOOD, M.B.Lond., M.R.C.P.Ed., R.A.M.C.	123
Sharks of Ahwaz. By Lieut.-Colonel R. S. HUNT, R.A.M.C.	79	AT RANDOM	
Brief Account of Winter Training of R.A.M.C. On the Rock. By Lieut.-Colonel G. C. DANSEY-BROWNING, R.A.M.C.	86	The Common Task	129
Value of Anti-Histamine Drugs in the Treatment of Infective Arthritis and Reiter's Disease. By Lieut.-Colonel BASIL LEVY, M.B., B.S., R.A.M.C.	93	Preventive Medicine in Medical Practice	131
Psychiatric Mental Disease in the African Congo. By R. R. WILLCOX, M.D.	97	CLINICAL AND OTHER NOTES	
Amulance Convoy Reception in a General Hospital. By Colonel G. DULSON, late R.A.M.C.	111	Regimental Medical Service One Hundred Years Ago. By "SENEX"	132
Royal Sanitary Institute Health Congress, 1951. By Lieut.-Colonel L. DAY, R.A.M.C.	117	Photography and Medicine. A Note by The Royal Photographic Society of Great Britain	135
		CORRESPONDENCE	137
		MATTERS OF INTEREST	140
		OBITUARY	147
		EXTRACTS FROM THE "LONDON GAZETTE"	149
		BOOK REVIEWS	152
		NOTICES	153



S T A P L E S P R E S S

STAPLES PRESS LIMITED STAPLES PRESS INCORPORATED

Mandeville Place, London 70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine. Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : "Instruments, Wesdo, London"

When writing advertisers please mention "Journal of the R.A.M.C."

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

THE SHARKS OF AHWAZ

BY

Lieut.-Colonel R. S. HUNT

Royal Army Medical Corps

EDITORIAL NOTE.—In the summer of 1941 reports of serious injury to individuals amongst troops stationed along the Shatt-el-Arab and creeks in the Basra Base area began to come in to Medical Headquarters.

These reports at first stated that the injuries, gross laceration of legs or arms, were caused by crocodiles (mugger). But our experience was entirely against the injuries being due to crocodile attack. These grip, hold on and gradually drag their victims into the water. The present series of injuries indicated a savage wrenching and avulsing attack by some creature armed with numerous, sharp, inward curving teeth.

Subsequent to the occupation of Ahwaz the information crystallized down to definite attacks by sharks in each case, although at first one could hardly credit sharks being some 90 miles up river from the sea.

About a dozen military cases were recorded with approximately similar histories of attack; this being either when the individual was swimming or actually bathing, or when washing vehicles or equipment at the edge of the water. In the former cases the attacked individuals completely disappeared, in the latter injuries such as are recorded in this article were reported.

One typical case which confirmed the earliest reports was of an I.A.S.C. Driver who had backed his ambulance-car into the shallow water of the rocky rapids at Ahwaz and was standing in the water less than knee deep washing the rear wheel of the vehicle. His right ankle was seized by a shark and he was pulled down off balance. His subsequent injuries, of which he died, were avulsion of the right leg, laceration of left hand and forearm and complete stripping of all tissues off the right arm.

On hearing recently that Colonel Hunt had a record of some of these cases we immediately asked for an article on the subject. Here it is.

AHWAZ is a small town on the plains of southern Persia standing astride the River Karun. It is important as a pumping station on the pipe line between the oil wells in the hills and the great refinery at Abadan.

At the outbreak of the "three day war" against the Persians in 1941, 25 Indian Field Ambulance established itself in the school buildings on the banks of the river. In September 1941, 21 Combined General Hospital took

over from the Field Ambulance and the surgical cases hitherto treated by them came under my care.

Among them I was surprised to find a Gurkha soldier who had had a forequarter amputation performed following a shark bite. It seemed extraordinary that such an accident could occur in a fresh-water river, some eighty miles from the sea and about thirty miles from the Shatt-el-Arab, that great river formed by the junction of the Tigris and Euphrates, which runs into the head of the Persian Gulf.

This was my first introduction to the sharks of Ahwaz.

This Gurkha soldier was the only Service man attacked by a shark and incidentally the only patient who lived to tell the tale. Twelve other civilian patients who came under my care all died.

It sounds bad, but the circumstances were seriously against good results. The casualties occurred mainly among young children and old people who were either undernourished or feeble with age. Usually the accident happened some distance away from the hospital and transport was both crude and slow. Add to this the extremely serious nature of the injuries and that peculiar oriental determination to die rather than to live, and the reason for fatalities becomes more understandable.

The first and the last of my cases are those that I remember best. The first because it was the first and because the whole incident seemed so pathetically tragic.

A small Persian boy aged 6 was paddling on those slimy sloping rocks by the waters edge whilst his mother was filling a water-pot close by. He slipped and fell and was seized by a shark.

When rescued both arms were devoid of all skin and muscle from the deltoid insertion down to the wrists. Fasciæ and joint capsules only held the bones together. The right hand had been avulsed from the wrist. The ulna was divided as though by a saw at mid-length whilst the other bones showed many grooves where vicious teeth had tried to snap through them.

The child was brought to hospital upon a donkey having been placed face downwards with arms and legs dangling astride. It had taken about an hour to bring him from the scene of the accident through the desert sand and ferocious heat of the Persian summer. He died soon afterwards.

The last case concerned an old man whom we had all got to know and the comparatively minor nature of his injuries together with the speed with which he received treatment made it seem that here at last was a case of shark bite that would survive. This was the way of it.

The C.O. of 21 C.G.H. at the time was an enthusiastic fisherman who spent a great deal of his spare time trying to catch a shark. The tales of those that got away were truly amazing. The one as big as a motor car is well remembered! He tried for weeks with tackle of all kinds and a variety of baits ranging from goats' meat to ripe appendices.

One day he came across an aged native fisherman who gave him the clue to success. He produced a handful of small nuts from a little bag hidden among his underclothes. If these were cut into small pieces, he said, and sprinkled on the water, small fish would presently come and devour them and having done so would lose all sense of balance and swim upon the surface where they could easily be caught. These, he said, were the shark's normal food and true to his word he proceeded to demonstrate how these small fish might be collected.

One early morning not long afterwards I was standing on the flat roof of the hospital making a rough sketch of the people at the river's edge below. Some were bathing, some filling water-pots, others were washing clothes by beating them on the rocks after the manner of the Indian dhobis, whilst yet others were merely carrying out that oriental custom of using water instead of paper as a finishing touch.

Among this little throng I saw the old fisherman ankle deep in water sprinkling some of the grated nuts and gathering in his victims. Presently there was a great noise of shouting and clapping hands and the water in front of him was churned into foam and I saw the old man slip and fall into the water. There he lay upon his back, half submerged while the dorsal fin of a shark swirled up and down close by in water that had a great red stain slowly spreading upon surface.

By the time I got there he had been dragged ashore and examination showed that one foot had been crushed and lacerated but no very grave damage had been done.

We hurried him into hospital but scarcely had we started treatment before he bade us not to worry. "I am going to die," he said, and we saw upon his face that strange expression of a mind convinced. Nothing we could do or say would convince him otherwise and before the sun was set that day he was dead.

There is good reason to remember him for that same evening the C.O. caught his first shark. I well remember seeing him struggling up the bank looking for all the world like the advertisement for "Sailor Brand Salmon."

It was 4 ft. 10 in. long but its weight has slipped my mind. Its dorsal fin had a great healed gash across the base where perhaps it had run foul of some net or cable and within its stomach we found the fragments of glass bangles.

Another old man comes back to my mind, who died twelve days after a shark bite of a secondary hæmorrhage from his femoral artery, having had a mid-thigh "avulsion" for which he refused any form of surgical operation.

He was a man of some local importance and was given a small ward to himself which soon became filled with relatives, mostly women, and all dressed in black. He was an opium smoker and the room soon became filled with that sticky aroma of sepsis and opium smoke.

One morning I was alarmed to see the degree of his delirium which at first I took to be due to his sepsis but later found was partly due to lack of opium

which an enthusiastic young M.O. had forbidden. The moment of his death was dramatic. The still silence of his room was broken by a sudden outbreak of mournful wailing by the women, who stood up and waved their arms about and literally tore their hair and their clothes and bared their breasts so that they might beat them. They danced about in circles and rolled upon the floor to the wide-eyed amazement of some B.O.R. patients who were peering through the windows.

Presently the charpoy was picked up and the dead man carried out shoulder high across the courtyard to the street beyond. That was the last we saw of him.

These three cases well illustrate why surgical results were so poor. There is no doubt that the injuries were appalling and in Ahwaz at least there was a local belief that the shark was a poisonous creature and death inevitable. However, we found no evidence for the latter.

It was said that the sharks had a habit of lashing out with their tails and knocking the victims off their feet who thereupon slipped off the rocks and fell into deep water. This seems unlikely as many of the people were only ankle deep and it is probable that the sight of a shark so terrified them that in their hurry to get away they slipped and fell.

On one other occasion I witnessed a shark attacking. There is rather a lovely suspension bridge across the river which connects the old town of Ahwaz with the new. Whilst walking across this one evening about sunset I heard the shouts of alarm from the banks below and I saw a Persian soldier level his rifle and fire into the water. The shark could easily be seen from that height and though several shots were fired they missed their mark. People on the river bank were hurrying out of the water clutching their pots and pans and dragging children to safety. One small toddler got left behind and stood petrified amid the din. The shark came near and certainly thrashed the water close by and once or twice the tail was seen to break the surface, but it never came into the shallows. Had the child moved it might well have fallen in and disappeared for good. Its terror alone saved it until a man came wading in to grab it.

Before writing this short memoir it seemed worth while writing to Dr. Anderson at Abadan to hear of his experiences. His reply, which he has kindly given me permission to publish, makes interesting reading.

He explains why there is a season in the year when sharks abound in the rivers of that part and also why there are comparatively fewer cases in Abadan than in Ahwaz. Doubtless too, The Anglo-Iranian Oil Company regulates the use of the rivers round the island and controls its employees (or used to before nationalization) and prolonged European influence may have helped to dispel some of the local superstitions. At any rate it is good to know that even the severe cases do well with good treatment and I thank him for the trouble he has taken to give the details he has.

If you ever go to Ahwaz don't bathe in the river!

Letter from Dr. Anderson

ANGLO-IRANIAN OIL CO. LTD.,
ABADAN,
IRAN.

Lieut.-Colonel R. S. Hunt, F.R.C.S.
British Military Hospital,
Tripoli.

October 7, 1950.

Dear Colonel Hunt,

Thank you for your note of September 9, and I have done my best to get some information.

I attach short clinical notes on 11 hospitalized cases of severe shark bite during the years 1945-49 inclusive. In addition we treat some minor lacerations in the Out-patient Department every year, the records of which are extremely difficult to assess.

There is general agreement that these fish only invade the rivers Shatt-el-Arab, Bahmashir and Karun during the months of July, August and September. The reason for this is quite obvious, as it is the time of the year when the fresh-water flow is minimal and tidal incursion maximal, the latter sometimes producing salinity figures in the Bahmashir and Shatt-el-Arab as high as 500 p.p.m. Little is known about the fish themselves and statements from local fishermen are extremely difficult to collate, but the few European observers state that they are about 4 to 6 ft. in length and have a shark-like mouth about 8 to 12 in. wide.

There is no question of their strength and ferocity in attack as will be seen from the record of the injuries which we have treated.

You will see that even very severe injuries heal readily if treated immediately, and that of the 3 deaths recorded 2 followed considerable exsanguination and shock and the third followed extremely severe injury with sepsis.

The bites are not toxic and respond to antibiotics and sulphanilamide extremely well. The victims are largely in the young and aged groups. Only the young swim in these waters. The women bathe and wash on the edge of the river with their clothes, on and men go to the local bath. The only aged one in my series was probably bathing or washing in the sea.

You can take it that these 11 cases constitute the incidence of severe cases in our region over the five years, but there is no doubt that other cases must have occurred which either did not seek treatment or were treated in local hospitals in Ahwaz. In Abadan we have established a considerable number of public baths which reduces the use of the rivers for bathing and washing.

I trust this information will be of some use to you and I should be very glad to receive a copy of your article when it has been published.

With kindest regards,

Yours sincerely,

A. ANDERSON, M.D., D.P.H., D.I.H.,
Deputy Chief Medical Officer,
Anglo-Iranian Oil Company, Ltd.

RECORD OF SHARK-BITE CASES AT ABADAN 1945-1949

<i>Name, date of admission, and place of accident</i>	<i>Age and sex</i>	<i>Nature of injury</i>	<i>Treatment</i>	<i>Date of discharge, result</i>
Abdol Karimi, 19.8.45. No record of place of accident	Boy Male	Traum. amputation, L. leg lower $\frac{1}{3}$. Four days old. Gross sepsis	Guillotine amputation. 4 in. below knee. Sulph. penicillin powder	8.10.45 Healed
Hamid, 6.9.45. Bahmashir swimming	Age 13 Male	Flexor and extensor muscles, R. forearm extensively lacerated. Loss of blood and nerve supply to forearm	Mid-humeral amputation.	7.10.45 Healed
Mehdi, 18.7.46 Karun at Ahwaz swimming	Age 12 Male	Left tendo Achillis severed, calf muscles severely lacerated	Debridement, tendon suture, vaseline gauze pack and plaster of Paris. Penicillin. 4.9.46 Thiersch graft to calf and tendo Achillis area	28.9.46 Almost completely healed
Khodadad, 18.7.46 Karun at Dorquain, fishing—probably with a net	Age 12 Male	Skin and muscles at level just below R. elbow, leaving half radius and ulna bare	Disarticulation R. elbow-joint 13.10.46 humeral cartilage at elbow excised	30.10.46 Healed
Ali —, 10.5.48 Drew a shark in his net but no record of its size	Age 38 Male	8 in. x 4 in. left antecubital fossa of muscle and skin removed, but nerve and blood supply intact	Debridement and application of Thiersch graft immediately. Penicillin	2.6.48 60 per cent graft taken. Healed except central area
Abdul Hussain, 19.8.48 Shatt-el-Arab	Age 13 Male	Complete exposure of R. humerus except long head of biceps with removal of all other tissue. Removal of all extensor and flexor muscles of wrist. Complete loss of blood supply to limb and complete nerve amputation	Amputation of R. arm through humerus. A.T.S. and A.G.G.S. penicillin. (Donor not obtainable)	Death about twelve — fourteen hours after injury

RECORD OF SHARK-BITE CASES AT ABADAN 1945-1949

<i>Name, date of admission, and place of accident</i>	<i>Age and sex</i>	<i>Nature of injury</i>	<i>Treatment</i>	<i>Date of discharge, result</i>
Roghai, 2.9.48 Bandar Mashur sea inlet, probably bathing or washing	Age 60 Female	Traum. amputation of left arm, just below axilla; almost complete removal of left buttock. Said to be twenty-four hours old but very septic	Removal of the piece of humerus. Penicillin. Eusol	Death twelve hours after operation
Abdul Imam, 14.12.48	Age 19 Male	Traumatic amputation of left thumb	Disarticulation at M.P. joint, A.T.S. sulphamylamide and penicillin	2.1.49 Discharged, healed
Ismail, 3.8.48 Bahmashir, swimming	Age 15 Male	Laceration of R. quadriceps tendon with separation from patellar attachment. Laceration of popliteal region femur exposed	Debridement and cleansing. Pyocyanous infection. 11.9.48 skin grafting after acetic acid and penicillin locally	Subsequently had to have popliteal nerve sutured 15.12.48. 21.2.49 had operation, but impossible suture rectus to patella so sutured to vastus lateralis and vastus medialis sutured to patellar tendon
Ali, 28.7.49 Bahmashir, swimming	Age 18 Male	Extreme laceration of R. thigh muscles down to the femur on both medial and lateral sides. Severe exsanguination	Amputation above mid-point of femur. Blood transfusion	Death 2½ hours after operation
A. Palmer (Ship's Apprentice) 29.7.49 Shatt-el-Arab. Swimming	Age 18 Male	Laceration wound R. leg through peroneal muscles to tibia. Minor laceration medial side of calf	Debridement sulphamylamide locally and penicillin A.T.S. and A.G.G.S. 3.8.49. Clean secondary suture	9.8.49. Peroneal nerve seems to be intact. Wound healed well. Allowed back to ship as skipper anxious to take him

RECORD OF SHARK-BITE CASES AT ABADAN 1945-1949

*Date of discharge,
result*

8.10.45
Healed

Treatment
Guillotine amputation.
4 in. below knee. Sulph.
penicillin powder

Nature of injury

Traum. amputation, L. leg
lower $\frac{1}{3}$. Four days old.

Gross sepsis

Age and sex

Boy

Male

Age 13

Flexion and extension

admission, and

result

No record of previous accident



Casualty collection under fire.



The comfortable casualty on a mule.

A BRIEF ACCOUNT OF WINTER TRAINING OF R.A.M.C. ON THE ROCK

BY

Lieut.-Colonel G. C. DANSEY-BROWNING
Royal Army Medical Corps

GIBRALTAR 1951

THE following is a very brief account of the Winter Training of the R.A.M.C. on the Rock, which has just been concluded. It was instituted with the object of giving as many of all ranks as possible some idea of the duties of the Corps in the Field.

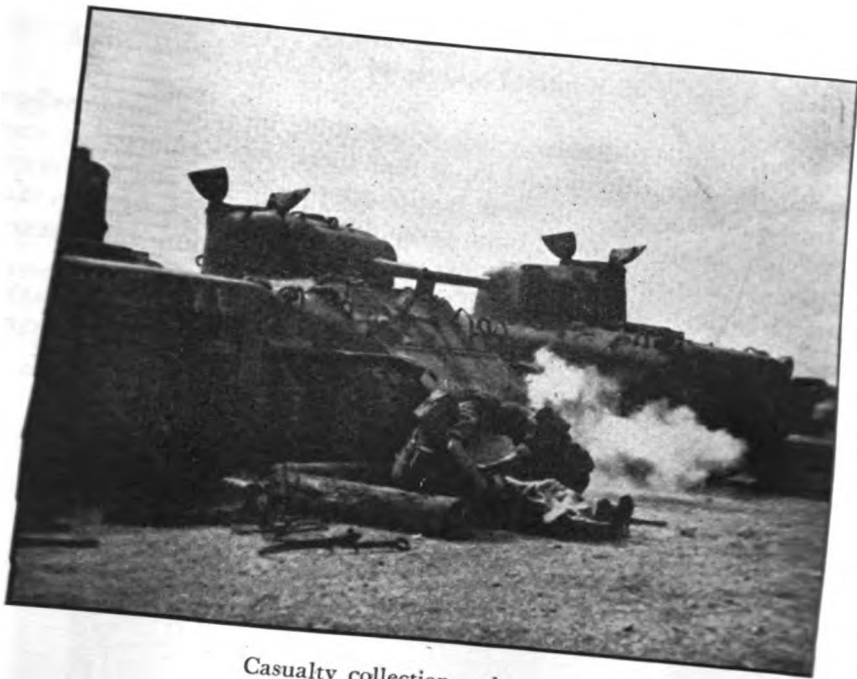
INSTRUCTIONAL RECREATION

That's what the programme called it, but this wasn't the description applied by panting members of No. 28 Company R.A.M.C. to three hours of hard physical slogging every Wednesday afternoon during the first three months of 1951. Still, an inch of practical is worth an ell of a lot of lectures, and the junior N.C.O.s in need of instruction in "Subject D for promotion" probably benefited in more than one way.

So it worked out at fifteen-minute lectures, only enough to permit of a breathing space, and the whole of the Rock to scramble over. The Q.M. produced denims, "G" Branch thunderflashes, whilst our joiner made models for the sand-table as if they were rolling off an automobile factory production line. Proud fathers whipped their sons' "Dinky toys" off them, and more than one housewife lost her salt-pepper set, to be painted and disguised as a hospital ship.

Mountain warfare conditions were available at the side of Windmill Hill, together with an imitation jungle, so what with the various tunnels, Gorts Hospital, not to mention "Little Gibraltar," we were able to exercise ten stretcher squads under fairly realistic conditions.

The Ordnance let us have three old Shermans from which to rescue casualties, whilst the Gunners fired their Bofors over our heads—were they thinking of reprisal when they called the operations "Inoculation Battle R.A.M.C."? We even found a 27-year-old mule (late R.A.S.C.) who toted a few casualties precariously until a thunderflash at its heels restored a semblance of its lost youth. The last reported remark of our casualty was "For sake, get me out of here," as he held on to the mule's ears. The erected an aerial railway for us over a chasm, half-way between head and it worked. The local photographer when developing prints members of the



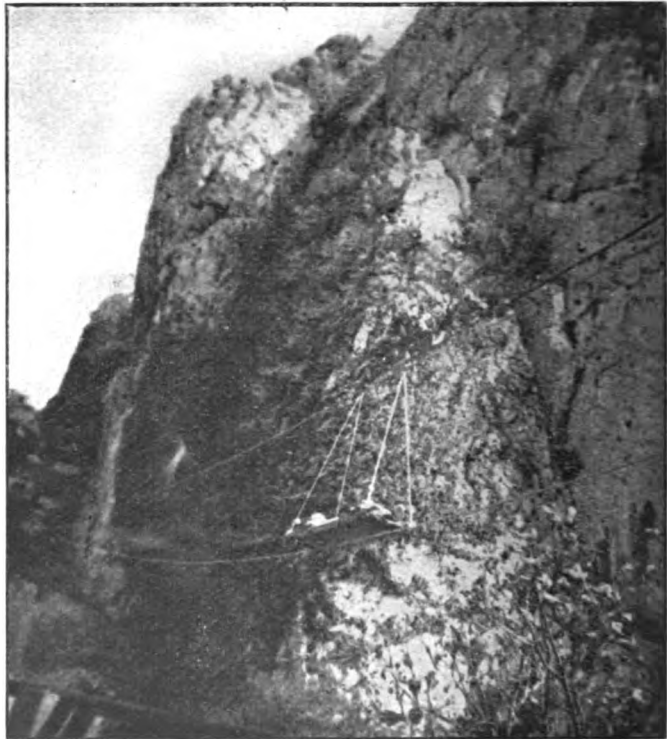
Casualty collection under fire.



The comfortable casualty on a mule.

crawling precariously across narrow ledges, swarming up ropes surrounded by fireworks, remarked that he did not know that there were Commandos on the Rock. Cimex and tear gas make a most vile olfactory assault and a quarter of a mile carry in gas-masks of 12-stone casualties resulted in severe profanity. It's hard to shout orders through a mask and so W/T procedure and control of the squads by walkie-talkie set proved tricky.

We hoisted Neil-Robertson stretchers over the tops of houses, and the victims reported that a thunderflash exploding on a corrugated iron roof makes a most satisfactory bang.



Casualty evacuation by aerial ropeway.

Some of us learned to march on a compass bearing and even to understand the ever-changing military conventional symbols on a map. Playlets pointed the moral of various military maxims, and we set up tentage, field-operating theatres, R.A.P.s and the like to emphasize various lectures. Even on the Field Day we remembered to signpost the way to various posts and as usual forgot to remove them at the conclusion of the tamasha. They still remain to mystify the local inhabitants.

The R.A.F. showed us how to seek the various panels from which to rescue helpless men from burning aircraft, but only a film strip to cover air evacuation,

and airborne R.A.M.C. was felt by some to be a poor substitute for the real thing.

The R.A.S.C. took us in their launches, and we practised ship to ship transfer of casualties in a breeze: then the Navy took a hand and demonstrated how their cranes and stretcher trays did it better and gave us a most enjoyable afternoon aboard H.M.S. "Vanguard."

The drivers of the three tonners used to get annoyed at the way we regularly removed their canopies to make boats to float out apprehensive casualties to the launches anchored off-shore in seven fathoms.

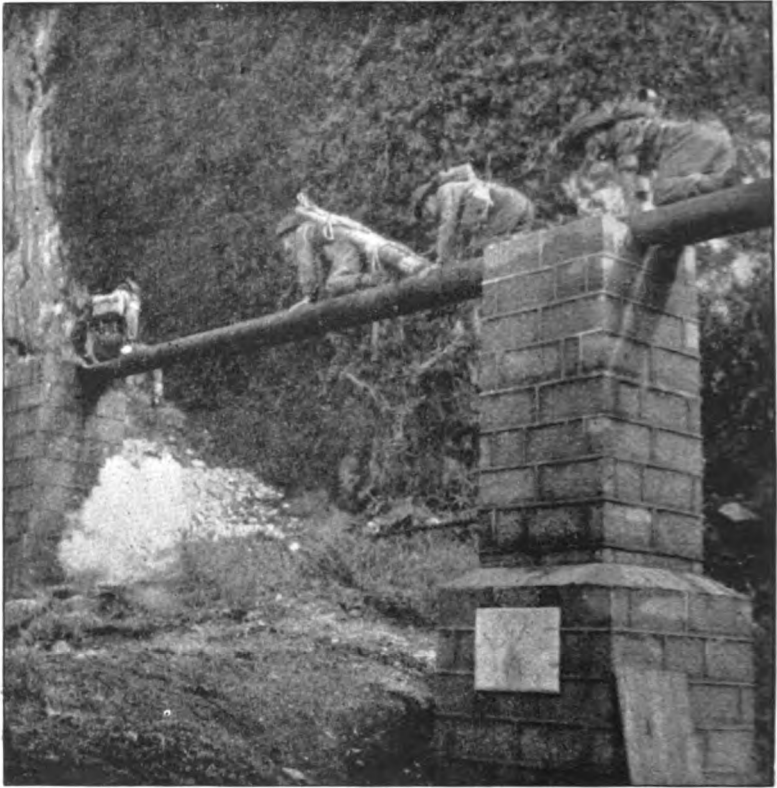


Sea Exercise. Bringing the casualties on to land.

Several of us learned incidentally that it was hard to swim in uniform, but we did make some stretchers float on biscuit tins, even if we couldn't float a man's kit and rifle inside a gas-cape. We set up a skeleton beach medical organization, whilst the Sappers showed us how to clear the beaches of mines.

About half-way through, after all the notes were typed for the lectures and demonstrations, the new excellent memorandum on field training came out. it is extremely good, even if a little sketchy about the duties of the more recon-dite medical units.

The best comment on the course was embodied in a remark made by one of the Company. "Could we have less lectures please, and more Fun." Well on the whole we had lots of Fun, and it was very interesting to see No. 1 bearers of the stretcher squads developing initiative and self-reliance when encountering unexpected situations.



R.A.M.C. stretcher squad advance to collect casualties from a difficult corner.

The Medical Branches of the other Services gave us magnificent co-operation, while the other branches of our own Service helped to put a real punch in the whole programme. But no Summer Training please.

I have to thank Colonel K. Fletcher-Barrett, *O.B.E.*, *F.R.C.S.*, *A.D.M.S.*, Gibraltar, for his consistent help and advice both on the course and in writing this article.

APPENDIX I

WINTER TRAINING PROGRAMME

1400-1420 (Lecture and Models)	1425-1500 (Practical)	1505-1530 (Demonstration or Playlet)	1535-1600 (Practical)	1605-1630 (Demonstration and Lecture or Playlet)
A. (1) Branches of Staff (2) R.A.M.C. Chain of Command	Stretcher Exercise First-aid forward area	Thomas splint Tobruk plaster	Collection wounded without stretchers, use of slings, straps supporting	Water purification Field cooking
B. Regimental Medical Establishment	Layout R.A.P. Care of wounded at R.A.P.	Medical Jeep Ambulance Car Equipment	Collection wounded with stretchers Improvised splinting in field Application Thomas splint	Disposal excreta and refuse in field Malaria
C. Field Ambulance (Infantry)	Erection Tentage Tentage in wet weather (Talk)	Map reading	Scheme Medical Evacuation (Cloth model)	"Setting up a drip"
D. Divisional Field Dressing Station	Rescue from A.F.V.	(1) A.F.V. first-aid outfit (2) Grid-game	Message writing Compass game	Camouflage (film) Camouflage (demonstration)
E. Documentation in Field	Erection tentage	(1) Medical Companion (2) Surgical haversack	R/T Procedure "88" Set	R.A.S.C. Duties in Fd. Amb. (lecture) Amb. Car Engine (demonstration)
F. (1) Airborne Armoured Divisional Units (2) River Crossing	Squad Control Coy. W/T (Collection casualties)	Discipline in Field (playlet)	(1) Neil - Robertson stretcher (2) Aerial railway	Ambulance Mule
G. (1) Setting up league (O & R group) (2) System Supply in Field	Rope climbing	Pack Store Procedure (playlet)	Roof climbing (relay race)	(1) Coy. Office Routine in Field (playlet) (2) R.A.D.C. in Field

(Continued on next page)

everyone should do a *real day's work* (an attitude which would be of great advantage to the country *at present in many grades of labour*), and consequently he noted and appreciated the work of all who really did their job and were keen on the Corps and the Service.

T. O. T.

Captain GEORGE THOMAS BRAY

ON May 3, 1951, Captain (Q.M.) George Thomas Bray, *M.B.E.*, Retired. of 42, Headstone Road, Harrow.

Born July 9, 1871, he enlisted November 9, 1894, and was commissioned Quartermaster and Hon. Lieutenant R.A.M.C. August 12, 1914.

He was promoted Q.M. and Hon. Captain August 12, 1917, received the *M.B.E.* June 3, 1926, and retired July 9, 1926.

He served in France August 26, 1914, to August 9, 1920, being mentioned in despatches and awarded the 1914 Star, British War and Victory Medals.

J. G. F.

Lieut.-Colonel FREDERICK WILLIAM LAMBALLE

IN York on May 5, 1951, Lieut.-Colonel Frederick William Lamballe, R.A.M.C., *M.B.*, Retired.

Born in Weston, Durham, December 9, 1873, he took the *M.B.* Durham in 1900, and was commissioned Lieutenant R.A.M.C. June 27, 1901. Promoted Captain June 27, 1904, and Major March 27, 1913, he was placed on half-pay owing to ill-health December 19, 1914, to August 18, 1915. Promoted Brevet Lieut.-Colonel June 3, 1917, he retired on account of ill-health April 2, 1921.

He was brought to notice for valuable services rendered in connexion with the war in the list published February 24, 1917, and received the Brevet of Lieut.-Colonel June 3, 1917.

J. G. F.

Major FREDERICK POWLETT RANKIN

IN Glasgow on May 19, 1951, Major Frederick Powlett Rankin, *O.B.E.*, *M.B.*, R.A.M.C., Retired.

Son of the late Mr. P. P. Rankin, of Glasgow, he was born November 26, 1889, and took the *M.B.* Glasgow, in 1914.

Commissioned Lieutenant R.A.M.C. (T.F.) October 20, 1914, he was appointed to a regular commission January 1, 1917.

Promoted Captain April 20, 1918, he retired with the rank of Major receiving a gratuity November 22, 1921.

He served in Gallipoli from July to November, 1915, and till the cessation of hostilities in Egypt and with the Egyptian Expeditionary Force.

He was mentioned in despatches and awarded the *O.B.E.*, 1914-15 Star, British War and Victory Medals.

J. G. F.

Notices

TOBRUK 41

THE Fifth Annual Officers' Dinner will be held on November 23, 1951, at the Connaught Rooms, Great Queen Street, Kingsway, London, W.C.1.

The cost of tickets will be £1 1s. per head exclusive of drinks.

Applications for tickets should be made to:

Major-General C. E. N. Lomax, *C.B., C.B.E., D.S.O., M.C.*,
7, Pittville Crescent,
Cheltenham, Glos.

MEDICAL FILMS

THE LYMPHATIC SYSTEM. Cat. No. M.25. Running time: 45 mins. 16 mm. Colour.

The film demonstrates, by means of animated diagrams and living animal preparations, the essential features of the physiological anatomy of the lymphatic system in the rabbit, cat, dog and monkey. After a historical introduction showing Asellius's anatomical diagram of the lacteals and a diagram concerning lymph formation, the classical method of demonstrating lymphatics by interstitial injection of dye is shown in the rabbit and man.

A series of demonstrations then follow showing: the lymphatic pathway in the hind-limb of the dog by cannulation of the lymph vessel and injection of dye into the pad of the foot; the cervical pathway by dropping dye on to the nasal mucosa of the dog, cat and monkey and recording the gradual coloration of the clear lymph in a cannula inserted into the vessel; the passage of dye from the subarachnoid space to the deep cervical vessels is shown in a similar manner; passage of dyes from the blood stream to the lymph and the Brownian movements of chylomicrons.

The film concludes with two animated diagrams, one showing the source and circulation of lymph and lymphocytes, while the other demonstrates the course taken in man by the subcutaneous lymph from the big toe to the blood stream.

FUNCTIONS OF CAROTID SINUS AND AORTIC NERVE. Cat. Nos. M.26 and M.27.

Made in collaboration with the Department of Physiology, University College, London.

This film is in two parts, each complete in itself. They are: Part I—Pressoreceptors and Part II—Chemoreceptors.

Part I.—Pressoreceptors. Cat. No. M.26. Running time: 38 mins. 16 mm. Colour.

This film begins with Czermak's observations in 1866 and passes on to the effects on blood pressure of clamping the carotid arteries with and without section of the depressor or aortic nerves.

The anatomy and histology of the carotid sinus is then demonstrated on the living animal and by diagram. This is followed by a similar series of demonstrations showing the anatomy of the aortic arch, the carotid sinus nerve and its embryological development, the aortic nerve and the histology of the carotid sinus nerve.

Stimulation of the aortic nerve—the effect on the blood pressure and heart of stimulation of the rabbit aortic nerve is shown. This is repeated after cutting the vagi thereby producing a fall in blood pressure which is not accompanied by any appreciable slowing of the heart. The fall in blood pressure on stimulation of the aortic nerve is also shown in the cat.

Stimulation of the carotid sinus nerve—comparable results in the cat are shown following stimulation of the carotid sinus nerve. Elimination of the effect on the heart-rate after double vagotomy is also demonstrated.

Perfusion of the isolated carotid sinus preparation—the experimental set-up and the perfusion equipment together with its oxygenator is demonstrated.

The dramatic fall in arterial pressure and the slowing of the heart-rate resulting from a rise in the perfusion pressure of the carotid sinus preparation in the dog is then shown. This is followed by a further demonstration to show that the carotid sinus reflex mechanism does not come into operation until a certain threshold pressure has been reached.

The film concludes with a diagrammatic re-interpretation of Czermak's classical experiment and a diagram summarizing the relationship between receptors, centres and peripheral effector organs.

Part II.—Chemoreceptors. Cat. No. M.27. Running time: 33 mins. 16 mm. Colour.

After a short historical introduction the anatomy of the carotid body is demonstrated in the dog. The histology of the carotid body and the anatomy of the aortic body is demonstrated by means of diagrams. A series of simple demonstrations of the functions of the chemoreceptors is then presented.

Effects of excess carbon dioxide—the experimental arrangements enabling different gas mixtures to be administered to a cat are shown. The effects of breathing 3 per cent, 6 per cent and 9 per cent carbon dioxide in air before and after denervation of the chemoreceptor areas are then presented to show that the carbon dioxide tension in the blood stimulated the respiratory centre reflexly via the chemoreceptors and by a direct action on the respiratory centre.

Effects of changes in hydrogen-ion concentration—these effects are shown by an intra-arterial injection of lactic acid.

Effects of oxygen lack—the demonstration shows that a mild degree of oxygen lack produces a slight but persistent respiratory stimulation, while an intensification of the oxygen lack shows a more vigorous respiratory response. The same experiments are repeated after denervation of the chemoreceptor areas, thereby demonstrating that after chemoreceptor denervation oxygen lack only produces respiratory failure without any preceding phase of respiratory stimulation.

Effects of cyanide injection—cyanide affects the respiratory mechanism in a similar way as oxygen lack. This is demonstrated before and after chemoreceptor denervation. The stimulation of respiration following lobeline and acetylcholine injection is also shown. The abolition of this response by denervation of the aortic and carotid chemoreceptors is demonstrated in each case.

Electrical stimulation of the carotid chemoreceptors—the effects are demonstrated on the cat under chloralose anaesthesia.

Chemical stimulation of aortic body chemoreceptors—the functional localization of the aortic chemoreceptors is shown by the injection of lobeline through a cannula introduced below the level of the aortic semilunar valves.

The film concludes with an animated diagram recapitulating the main conclusions which can be drawn from the demonstrations presented.

LIVINGSTONE'S 1951 CATALOGUE

THIS Catalogue has just appeared and a copy will be gladly forwarded to anyone interested. 16-17, Teviot Place, Edinburgh.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 payable in advance. Single copies, 2s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Hol & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		
ORIGINAL COMMUNICATIONS		Dermatology in Singapore. By Major KEMBLE GREENWOOD, M.B.Lond., M.R.C.P.Ed., R.A.M.C.	
Sharks of Ahwaz. By Lieut.-Colonel R. S. HUNT, R.A.M.C. . .	79		123
		AT RANDOM	
Brief Account of Winter Training of R.A.M.C. On the Rock. By Lieut.-Colonel G. C. DANSEY-BROWNING, R.A.M.C.	86	The Common Task	129
		Preventive Medicine in Medical Practice	131
Value of Anti-Histamine Drugs in the Treatment of Infective Arthritis and Reiter's Disease. By Lieut.-Colonel BASIL LEVY, M.B., B.S., R.A.M.C.	93	CLINICAL AND OTHER NOTES	
Paralytic Mental Disease in the African Negro. By R. R. WILLCOX, M.D. . .	97	Regimental Medical Service One Hundred Years Ago. By "SENEX"	132
Amulance Convoy Reception in a General Hospital. By Colonel G. BULSON, late R.A.M.C.	111	Photography and Medicine. A Note by The Royal Photographic Society of Great Britain	135
Royal Sanitary Institute Health Congress, 1951. By Lieut.-Colonel L. DAY, R.A.M.C.	117	CORRESPONDENCE	137
		MATTERS OF INTEREST	140
		OBITUARY	147
		EXTRACTS FROM THE "LONDON GAZETTE"	149
		BOOK REVIEWS	152
		NOTICES	153



S T A P L E S P R E S S

STAPLES PRESS LIMITED STAPLES PRESS INCORPORATED

Mandeville Place, London 70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : "Instruments, Wesdo, London"

When writing advertisers please mention "Journal of the R.A.M.C."

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

THE SHARKS OF AHWAZ

BY

Lieut.-Colonel R. S. HUNT

Royal Army Medical Corps

EDITORIAL NOTE.—In the summer of 1941 reports of serious injury to individuals amongst troops stationed along the Shatt-el-Arab and creeks in the Basra Base area began to come in to Medical Headquarters.

These reports at first stated that the injuries, gross laceration of legs or arms, were caused by crocodiles (mugger). But our experience was entirely against the injuries being due to crocodile attack. These grip, hold on and gradually drag their victims into the water. The present series of injuries indicated a savage wrenching and avulsing attack by some creature armed with numerous, sharp, inward curving teeth.

Subsequent to the occupation of Ahwaz the information crystallized down to definite attacks by sharks in each case, although at first one could hardly credit sharks being some 90 miles up river from the sea.

About a dozen military cases were recorded with approximately similar histories of attack; this being either when the individual was swimming or actually bathing, or when washing vehicles or equipment at the edge of the water. In the former cases the attacked individuals completely disappeared, in the latter injuries such as are recorded in this article were reported.

One typical case which confirmed the earliest reports was of an I.A.S.C. Driver who had backed his ambulance-car into the shallow water of the rocky rapids at Ahwaz and was standing in the water less than knee deep washing the rear wheel of the vehicle. His right ankle was seized by a shark and he was pulled down off balance. His subsequent injuries, of which he died, were avulsion of the right leg, laceration of left hand and forearm and complete stripping of all tissues off the right arm.

On hearing recently that Colonel Hunt had a record of some of these cases we immediately asked for an article on the subject. Here it is.

AHWAZ is a small town on the plains of southern Persia standing astride the River Karun. It is important as a pumping station on the pipe line between the oil wells in the hills and the great refinery at Abadan.

At the outbreak of the "three day war" against the Persians in 1941, 25 Indian Field Ambulance established itself in the school buildings on the banks of the river. In September 1941, 21 Combined General Hospital took

over from the Field Ambulance and the surgical cases hitherto treated by them came under my care.

Among them I was surprised to find a Gurkha soldier who had had a forequarter amputation performed following a shark bite. It seemed extraordinary that such an accident could occur in a fresh-water river, some eighty miles from the sea and about thirty miles from the Shatt-el-Arab, that great river formed by the junction of the Tigris and Euphrates, which runs into the head of the Persian Gulf.

This was my first introduction to the sharks of Ahwaz.

This Gurkha soldier was the only Service man attacked by a shark and incidentally the only patient who lived to tell the tale. Twelve other civilian patients who came under my care all died.

It sounds bad, but the circumstances were seriously against good results. The casualties occurred mainly among young children and old people who were either undernourished or feeble with age. Usually the accident happened some distance away from the hospital and transport was both crude and slow. Add to this the extremely serious nature of the injuries and that peculiar oriental determination to die rather than to live, and the reason for fatalities becomes more understandable.

The first and the last of my cases are those that I remember best. The first because it was the first and because the whole incident seemed so pathetically tragic.

A small Persian boy aged 6, was paddling on those slimy sloping rocks by the waters edge whilst his mother was filling a water-pot close by. He slipped and fell and was seized by a shark.

When rescued both arms were devoid of all skin and muscle from the deltoid insertion down to the wrists. Fasciæ and joint capsules only held the bones together. The right hand had been avulsed from the wrist. The ulna was divided as though by a saw at mid-length whilst the other bones showed many grooves where vicious teeth had tried to snap through them.

The child was brought to hospital upon a donkey having been placed face downwards with arms and legs dangling astride. It had taken about an hour to bring him from the scene of the accident through the desert sand and ferocious heat of the Persian summer. He died soon afterwards.

The last case concerned an old man whom we had all got to know and the comparatively minor nature of his injuries together with the speed with which he received treatment made it seem that here at last was a case of shark bite that would survive. This was the way of it.

The C.O. of 21 C.G.H. at the time was an enthusiastic fisherman who spent a great deal of his spare time trying to catch a shark. The tales of those that got away were truly amazing. The one as big as a motor car is well remembered! He tried for weeks with tackle of all kinds and a variety of baits ranging from goats' meat to ripe appendices.

One day he came across an aged native fisherman who gave him the clue to success. He produced a handful of small nuts from a little bag hidden among his underclothes. If these were cut into small pieces, he said, and sprinkled on the water, small fish would presently come and devour them and having done so would lose all sense of balance and swim upon the surface where they could easily be caught. These, he said, were the shark's normal food and true to his word he proceeded to demonstrate how these small fish might be collected.

One early morning not long afterwards I was standing on the flat roof of the hospital making a rough sketch of the people at the river's edge below. Some were bathing, some filling water-pots, others were washing clothes by beating them on the rocks after the manner of the Indian dhobis, whilst yet others were merely carrying out that oriental custom of using water instead of paper as a finishing touch.

Among this little throng I saw the old fisherman ankle deep in water sprinkling some of the grated nuts and gathering in his victims. Presently there was a great noise of shouting and clapping hands and the water in front of him was churned into foam and I saw the old man slip and fall into the water. There he lay upon his back, half submerged while the dorsal fin of a shark swirled up and down close by in water that had a great red stain slowly spreading upon surface.

By the time I got there he had been dragged ashore and examination showed that one foot had been crushed and lacerated but no very grave damage had been done.

We hurried him into hospital but scarcely had we started treatment before he bade us not to worry. "I am going to die," he said, and we saw upon his face that strange expression of a mind convinced. Nothing we could do or say would convince him otherwise and before the sun was set that day he was dead.

There is good reason to remember him for that same evening the C.O. caught his first shark. I well remember seeing him struggling up the bank looking for all the world like the advertisement for "Sailor Brand Salmon."

It was 4 ft. 10 in. long but its weight has slipped my mind. Its dorsal fin had a great healed gash across the base where perhaps it had run foul of some net or cable and within its stomach we found the fragments of glass bangles.

Another old man comes back to my mind, who died twelve days after a shark bite of a secondary hæmorrhage from his femoral artery, having had a mid-thigh "avulsion" for which he refused any form of surgical operation.

He was a man of some local importance and was given a small ward to himself which soon became filled with relatives, mostly women, and all dressed in black. He was an opium smoker and the room soon became filled with that sticky aroma of sepsis and opium smoke.

One morning I was alarmed to see the degree of his delirium which at first I took to be due to his sepsis but later found was partly due to lack of opium

which an enthusiastic young M.O. had forbidden. The moment of his death was dramatic. The still silence of his room was broken by a sudden outbreak of mournful wailing by the women, who stood up and waved their arms about and literally tore their hair and their clothes and bared their breasts so that they might beat them. They danced about in circles and rolled upon the floor to the wide-eyed amazement of some B.O.R. patients who were peering through the windows.

Presently the charpoy was picked up and the dead man carried out shoulder high across the courtyard to the street beyond. That was the last we saw of him.

These three cases well illustrate why surgical results were so poor. There is no doubt that the injuries were appalling and in Ahwaz at least there was a local belief that the shark was a poisonous creature and death inevitable. However, we found no evidence for the latter.

It was said that the sharks had a habit of lashing out with their tails and knocking the victims off their feet who thereupon slipped off the rocks and fell into deep water. This seems unlikely as many of the people were only ankle deep and it is probable that the sight of a shark so terrified them that in their hurry to get away they slipped and fell.

On one other occasion I witnessed a shark attacking. There is rather a lovely suspension bridge across the river which connects the old town of Ahwaz with the new. Whilst walking across this one evening about sunset I heard the shouts of alarm from the banks below and I saw a Persian soldier level his rifle and fire into the water. The shark could easily be seen from that height and though several shots were fired they missed their mark. People on the river bank were hurrying out of the water clutching their pots and pans and dragging children to safety. One small toddler got left behind and stood petrified amid the din. The shark came near and certainly thrashed the water close by and once or twice the tail was seen to break the surface, but it never came into the shallows. Had the child moved it might well have fallen in and disappeared for good. Its terror alone saved it until a man came wading in to grab it.

Before writing this short memoir it seemed worth while writing to Dr. Anderson at Abadan to hear of his experiences. His reply, which he has kindly given me permission to publish, makes interesting reading.

He explains why there is a season in the year when sharks abound in the rivers of that part and also why there are comparatively fewer cases in Abadan than in Ahwaz. Doubtless too, The Anglo-Iranian Oil Company regulates the use of the rivers round the island and controls its employees (or used to before nationalization) and prolonged European influence may have helped to dispel some of the local superstitions. At any rate it is good to know that even the severe cases do well with good treatment and I thank him for the trouble he has taken to give the details he has.

If you ever go to Ahwaz don't bathe in the river!

Letter from Dr. Anderson

ANGLO-IRANIAN OIL CO. LTD.,
ABADAN,
IRAN.

Lieut.-Colonel R. S. Hunt, F.R.C.S.
British Military Hospital,
Tripoli.

October 7, 1950.

Dear Colonel Hunt,

Thank you for your note of September 9, and I have done my best to get some information.

I attach short clinical notes on 11 hospitalized cases of severe shark bite during the years 1945-49 inclusive. In addition we treat some minor lacerations in the Out-patient Department every year, the records of which are extremely difficult to assess.

There is general agreement that these fish only invade the rivers Shatt-el-Arab, Bahmashir and Karun during the months of July, August and September. The reason for this is quite obvious, as it is the time of the year when the fresh-water flow is minimal and tidal incursion maximal, the latter sometimes producing salinity figures in the Bahmashir and Shatt-el-Arab as high as 500 p.p.m. Little is known about the fish themselves and statements from local fishermen are extremely difficult to collate, but the few European observers state that they are about 4 to 6 ft. in length and have a shark-like mouth about 8 to 12 in. wide.

There is no question of their strength and ferocity in attack as will be seen from the record of the injuries which we have treated.

You will see that even very severe injuries heal readily if treated immediately, and that of the 3 deaths recorded 2 followed considerable exsanguination and shock and the third followed extremely severe injury with sepsis.

The bites are not toxic and respond to antibiotics and sulphanilamide extremely well. The victims are largely in the young and aged groups. Only the young swim in these waters. The women bathe and wash on the edge of the river with their clothes on and men go to the local bath. The only aged one in my series was probably bathing or washing in the sea.

You can take it that these 11 cases constitute the incidence of severe cases in our region over the five years, but there is no doubt that other cases must have occurred which either did not seek treatment or were treated in local hospitals in Ahwaz. In Abadan we have established a considerable number of public baths which reduces the use of the rivers for bathing and washing.

I trust this information will be of some use to you and I should be very glad to receive a copy of your article when it has been published.

With kindest regards,

Yours sincerely,

A. ANDERSON, M.D., D.P.H., D.I.H.,
Deputy Chief Medical Officer,
Anglo-Iranian Oil Company, Ltd.

RECORD OF SHARK-BITE CASES AT ABADAN 1945-1949

<i>Name, date of admission, and place of accident</i>	<i>Age and sex</i>	<i>Nature of injury</i>	<i>Treatment</i>	<i>Date of discharge, result</i>
Abdol Karmi, 19.8.45. No record of place of accident	Boy Male	Traum. amputation, L. leg lower $\frac{1}{3}$. Four days old. Gross sepsis	Guillotine amputation. 4 in. below knee. Sulph. penicillin powder	8.10.45 Healed
Hamid, 6.9.45. Bahmashir swimming	Age 13 Male	Flexor and extensor muscles, R. forearm extensively lacerated. Loss of blood and nerve supply to forearm	Mid-humeral amputation.	7.10.45 Healed
Mehdi, 18.7.46 Karun at Ahwaz swimming	Age 12 Male	Left tendo Achillis severed, calf muscles severely lacerated	Debridement, tendon suture, vaseline gauze pack and plaster of Paris. Penicillin. 4.9.46 Thiersch graft to calf and tendo Achillis area	28.9.46 Almost completely healed
Khodadad, 18.7.46 Karun at Dorquin, fishing—probably with a net	Age 12 Male	Skin and muscles at level just below R. elbow, leaving half radius and ulna bare	Disarticulation R. elbow-joint 13.10.46 humeral cartilage at elbow excised	30.10.46 Healed
Ali —, 10.5.48 Drew a shark in his net but no record of its size	Age 38 Male	8 in. x 4 in. left antecubital fossa of muscle and skin removed, but nerve and blood supply intact	Debridement and application of Thiersch graft immediately. Penicillin	2.6.48 60 per cent graft taken. Healed except central area
Abdul Hussain, 19.8.48 Shatt-el-Arab	Age 13 Male	Complete exposure of R. humerus except long head of biceps with removal of all other tissue. Removal of all extensor and flexor muscles of wrist. Complete loss of blood supply to limb and considerable exsanguination	Amputation of R. arm through humerus. A.T.S. and A.G.S. penicillin. (Donor not obtainable)	Death about twelve — fourteen hours after injury

RECORD OF SHARK-BITE CASES AT ABADAN 1945-1949

<i>Name, date of admission, and place of accident</i>	<i>Age and sex</i>	<i>Nature of injury</i>	<i>Treatment</i>	<i>Date of discharge, result</i>
Roghai, 2.9.48 Bandar Mashur sea inlet, probably bathing or washing	Age 60 Female	Traum. amputation of left arm, just below axilla; almost complete removal of left buttock. Said to be twenty-four hours old but very septic	Removal of the piece of humerus. Penicillin. Eusol	Death twelve hours after operation
Abdul Imam, 14.12.48	Age 19 Male	Traumatic amputation of left thumb	Disarticulation at M.P. joint, A.T.S. sulphamylamide and penicillin	2.1.49 Discharged, healed
Ismail, 3.8.48 Bahmashir, swimming	Age 15 Male	Laceration of R. quadriceps tendon with separation from patellar attachment. Laceration of popliteal region femur exposed	Debridement and cleansing. Pyocyanous infection. 11.9.48 skin grafting after acetic acid and penicillin locally	Subsequently had to have popliteal nerve sutured 15.12.48. 21.2.49 had operation, but impossible suture rectus to patella so sutured to vastus lateralis and vastus medialis sutured to patellar tendon
Ali, 28.7.49 Bahmashir, swimming	Age 18 Male	Extreme laceration of R. thigh muscles down to the femur on both medial and lateral sides. Severe exsanguination	Amputation above mid-point of femur. Blood transfusion	Death 2½ hours after operation
A. Palmer (Ship's Apprentice) 29.7.49 Shatt-el-Arab. Swimming	Age 18 Male	Laceration wound R. leg through peroneal muscles to tibia. Minor laceration medial side of calf	Debridement sulphamylamide locally and penicillin A.T.S. and A.G.G.S. 3.8.49. Clean secondary suture	9.8.49. Peroneal nerve seems to be intact. Wound healed well. Allowed back to ship as skipper anxious to take him

A BRIEF ACCOUNT OF WINTER TRAINING OF R.A.M.C. ON THE ROCK

BY

Lieut.-Colonel G. C. DANSEY-BROWNING

Royal Army Medical Corps

GIBRALTAR 1951

THE following is a very brief account of the Winter Training of the R.A.M.C. on the Rock, which has just been concluded. It was instituted with the object of giving as many of all ranks as possible some idea of the duties of the Corps in the Field.

INSTRUCTIONAL RECREATION

That's what the programme called it, but this wasn't the description applied by panting members of No. 28 Company R.A.M.C. to three hours of hard physical slogging every Wednesday afternoon during the first three months of 1951. Still, an inch of practical is worth an ell of a lot of lectures, and the junior N.C.O.s in need of instruction in "Subject D for promotion" probably benefited in more than one way.

So it worked out at fifteen-minute lectures, only enough to permit of a breathing space, and the whole of the Rock to scramble over. The Q.M. produced denims, "G" Branch thunderflashes, whilst our joiner made models for the sand-table as if they were rolling off an automobile factory production line. Proud fathers whipped their sons' "Dinky toys" off them, and more than one housewife lost her salt-pepper set, to be painted and disguised as a hospital ship.

Mountain warfare conditions were available at the side of Windmill Hill, together with an imitation jungle, so what with the various tunnels, Gorts Hospital, not to mention "Little Gibraltar," we were able to exercise ten stretcher squads under fairly realistic conditions.

The Ordnance let us have three old Shermans from which to rescue casualties, whilst the Gunners fired their Bofors over our heads—were they thinking of reprisal when they called the operations "Inoculation Battle R.A.M.C."? We even found a 27-year-old mule (late R.A.S.C.) who toted a few casualties precariously until a thunderflash at its heels restored a semblance of its lost youth. The last reported remark of our casualty was "For sake, get me out of here," as he held on to the mule's ears. The Sappers erected an aerial railway for us over a chasm, half-way between heaven and earth, and it worked. The local photographer when developing prints of various members of the unit



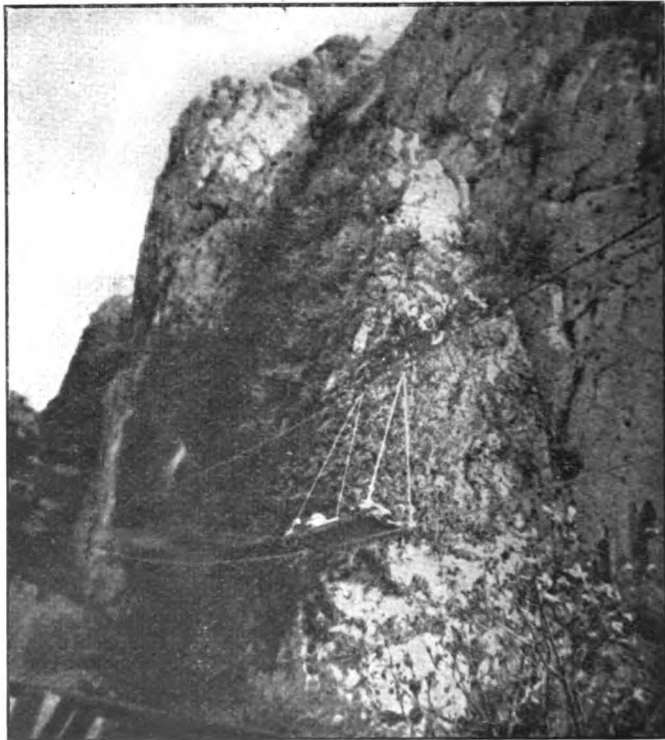
Casualty collection under fire.



The comfortable casualty on a mule.

crawling precariously across narrow ledges, swarming up ropes surrounded by fireworks, remarked that he did not know that there were Commandos on the Rock. Cimex and tear gas make a most vile olfactory assault and a quarter of a mile carry in gas-masks of 12-stone casualties resulted in severe profanity. It's hard to shout orders through a mask and so W/T procedure and control of the squads by walkie-talkie set proved tricky.

We hoisted Neil-Robertson stretchers over the tops of houses, and the victims reported that a thunderflash exploding on a corrugated iron roof makes a most satisfactory bang.



Casualty evacuation by aerial ropeway.

Some of us learned to march on a compass bearing and even to understand the ever-changing military conventional symbols on a map. Playlets pointed the moral of various military maxims, and we set up tentage, field-operating theatres, R.A.P.s and the like to emphasize various lectures. Even on the Field Day we remembered to signpost the way to various posts and as usual forgot to remove them at the conclusion of the tamasha. They still remain to mystify the local inhabitants.

The R.A.F. showed us how to seek the various panels from which to rescue helpless men from burning aircraft, but only a film strip to cover air evacuation,

and airborne R.A.M.C. was felt by some to be a poor substitute for the real thing.

The R.A.S.C. took us in their launches, and we practised ship to ship transfer of casualties in a breeze: then the Navy took a hand and demonstrated how their cranes and stretcher trays did it better and gave us a most enjoyable afternoon aboard H.M.S. "Vanguard."

The drivers of the three tonners used to get annoyed at the way we regularly removed their canopies to make boats to float out apprehensive casualties to the launches anchored off-shore in seven fathoms.



Sea Exercise. Bringing the casualties on to land.

Several of us learned incidentally that it was hard to swim in uniform, but we did make some stretchers float on biscuit tins, even if we couldn't float a man's kit and rifle inside a gas-cape. We set up a skeleton beach medical organization, whilst the Sappers showed us how to clear the beaches of mines.

About half-way through, after all the notes were typed for the lectures and demonstrations, the new excellent memorandum on field training came out. it is extremely good, even if a little sketchy about the duties of the more recon-dite medical units.

The best comment on the course was embodied in a remark made by one of the Company. "Could we have less lectures please, and more Fun." Well on the whole we had lots of Fun, and it was very interesting to see No. 1 bearers of the stretcher squads developing initiative and self-reliance when encountering unexpected situations.



R.A.M.C. stretcher squad advance to collect casualties from a difficult corner.

The Medical Branches of the other Services gave us magnificent co-operation, while the other branches of our own Service helped to put a real punch in the whole programme. But no Summer Training please.

I have to thank Colonel K. Fletcher-Barrett, *O.B.E.*, *F.R.C.S.*, *A.D.M.S.*, Gibraltar, for his consistent help and advice both on the course and in writing this article.

APPENDIX I

WINTER TRAINING PROGRAMME

1400-1420 (Lecture and Models)	1425-1500 (Practical)	1505-1530 (Demonstration or Playlet)	1535-1600 (Practical)	1605-1630 (Demonstration and Lecture or Playlet)
A. (1) Branches of Staff (2) R.A.M.C. Chain of Command	Stretcher Exercise First-aid forward area	Thomas splint Tobruk plaster	Collection wounded with- out stretchers, use of slings, straps support- ing	Water purification Field cooking
B. Regimental Medical Establishment	Layout R.A.P. Care of wounded at R.A.P.	Medical Jeep Ambulance Car Equip- ment	Collection wounded with stretchers Improvised splinting in field Application Thomas splint	Disposal excreta and refuse in field Malaria
C. Field Ambulance (Infantry)	Erection Tentage Tentage in wet weather (Talk)	Map reading	Scheme Medical Evacu- tion (Cloth model)	"Setting up a drip"
D. Divisional Field Dress- ing Station	Rescue from A.F.V.	(1) A.F.V. first-aid out- fit (2) Grid-game	Message writing Compass game	Camouflage (film) Camouflage (demonstra- tion)
E. Documentation in Field	Erection tentage	(1) Medical Companion (2) Surgical haversack	R/T Procedure "88" Set	R.A.S.C. Duties in Fd. Amb. (lecture) Amb. Car Engine (demonstration)
F. (1) Airborne Armoured Divisional Units (2) River Crossing	Squad Control Coy. W/T (Collection casualties)	Discipline in Field (playlet)	(1) Neil - Robertson stretcher (2) Aerial railway	Ambulance Mule
G. (1) Setting up league (O & R group) (2) System Supply in Field	Rope climbing	Pack Store Procedure (playlet)	Roof climbing (relay race)	(1) Coy. Office Routine in Field (playlet) (2) R.A.D.C. in Field

(Continued on next page)

APPENDIX I—continued

1400-1420 (Lecture and Models)	1425-1500 (Practical)	1505-1530 (Demonstration or Playlet)	1535-1600 (Practical)	1605-1630 (Demonstration and Lecture or Playlet)
H. Medical Units behind Division, Part I	Personal protection against gas-respirator	Layout Field Operating theatre	Collection casualties through gassed area	Atomic warfare (film)
(1) Corps Medical Centre				
(2) Advanced Surgical Centre				
I. (1) Medical Units be- hind Division.	Gas chamber	A.B.C. warfare	Construction of boats and floats on dry land	Duties Embarkation Medical Staff, sea or air (playlet)
Part II	Chemical warfare			
(2) Field Amb. in aid of Civil Defence				
J. (1) Medical Units, Line of Com- munication, and Base	Film-strip Air-evacuation and Airborne operations	Rescue from aircraft	Loading casualties into aircraft	(1) Priorities air-evacu- ation (2) Casualty air-evacua- tion Unit (R.A.F.)
(2) Air evacuation				
K. Sea-going duties. R.A.M.C.	R.A.S.C. launch (ambu- lance launch)	Ship to ship transfer of casualties (practical)	R. Naval Medical Service Medical arrangements in battleships	
L. Assault Landing	Beach Medical Organisa- tion	Swimming in uniform	Evacuation casualties over water obstacles	Beach mine clearance
M. Demonstration of:	Field Day	Setting up: (1) R.A.P. (2) C.C.P. (3) Coy. H.Q. (4) A.D.S. (Field Theatre)	Demonstration Improvised boats Evacuation of casualties over water obstacles	Skelton Beach Medical Organization and Assault Landing Medical Adminis- tration
(1) Rescue from minefield				
(2) Medical jeep				
(3) Rescue from A.F.V.				
(4) Aerial railway				
(5) Ambulance—mule				

THE VALUE OF ANTI-HISTAMINE DRUGS IN THE TREATMENT OF INFECTIVE ARTHRITIS AND REITER'S DISEASE

BY

Lieut.-Colonel BASIL LEVY, M.B., B.S.
Royal Army Medical Corps

For the purpose of this article the term infective arthritis is used to describe the joint affection which occurs in some cases of gonorrhœa and non-specific urethritis.

It has been shown that arthritis can occur as a complication of non-gonococcal urethritis; also that when arthritis complicates a case of proven gonorrhœa, treatment with penicillin will cure the gonorrhœa, but, in the majority of cases, has no beneficial influence on the joint condition. In addition, it is impossible to differentiate by clinical, radiological and bacteriological methods this type of arthritis from that which occurs in Reiter's disease (Levy, 1950).

Harkness has described the demonstration of inclusion bodies and "L" organisms in scrapings taken from the urethra and skin of cases of non-specific urethritis and Reiter's disease. He considers that both the venereal and dysenteric syndromes of Reiter's disease are due either to a virus or a pleuropneumonia-like organism.

Although the specific cause, if any, of infective arthritis has not been definitely established its treatment can usually be successfully undertaken by a variety of methods: fever (intravenous T.A.B. or hyperthermy), vaccines, physiotherapy are but a few. However, whatever method or methods of treatment are chosen, there always results a percentage of failures.

In a previous study of 100 cases of infective arthritis, it was noticed that many patients gave a history of having suffered from a previous attack of gonorrhœa or non-specific urethritis, and it was thought that allergy may play some part in the ætiology of the arthritis which accompanied the recent urethral infection.

Following on this conception of an allergic causation, it was decided to try the effect of anti-histamine drugs. Below are described 7 cases of infective arthritis which were treated with phenergan in the British Military Hospital, Singapore, from November 1949 to December 1950. Two tablets, each containing 0.025 gramme, were given three times daily until clinical improvement had occurred. This took approximately seven days of treatment.

Case 1.—S.B.A. L. R.N.

History.—Exposure to infection 27.10.49. First noticed a urethral discharge 18.11.49 and soon after developed arthritis and conjunctivitis. He was treated at sea with 2.4 mega units of penicillin and 27 grammes of M&B 760. On admission to hospital 27.12.49 there was present a considerable effusion and tenderness of the right knee-joint. The right ankle-joint was painful and there was conjunctivitis of both eyes. A urethral smear showed pus cells only. The urine was hazy with pus. Culture of a mid-stream specimen grew *Staph. albus* only. The B.S.R. was 8 mm. drop in one hour on 27.12.49. A repeat B.S.R. on 30.12.49 showed 43 mm. drop in one hour.

Treatment.—Penicillin 50,000 units three hourly—2 mega units were given; streptomycin 3 grammes daily—total 24 grammes given.

On 17.1.50 there was no improvement, and aureomycin was given (8 grammes). After this, the urine was clearer, but the arthritis remained little changed. Generalized early keratoderma appeared on the soles of both the feet.

On 24.1.50 fever therapy was given (i.v. T.A.B.) on three occasions, also autohaemotherapy and a course of stilboestrol.

On 2.2.50 the B.S.R. was 62 mm. drop in one hour. Slight improvement and he was allowed to get up for a few hours daily.

On 6.3.50 he developed a painful spur on the left calcaneus. He looked ill and had lost a great deal of weight.

On 20.3.50 pheneregan was started and he was given a total of 1.2 grammes.

On 30.3.50 he had improved sufficiently to go to the hill station for convalescence and to continue physiotherapy there.

He was seen again on 3.5.50. He looked extremely fit and well. He had no complaints and his joints were satisfactory. The B.S.R. was 4 mm. drop in one hour. He returned to full duty.

Case 2.—L.A.C. W.

History.—Several exposures with the same woman. A previous attack of urethritis 1943. Admitted 21.2.50 and diagnosed non-specific urethritis.

Treatment.—He was treated with penicillin 250,000 units and 25 grammes of sulphadiazine. There was no improvement so he was given and responded to 7.5 grammes of streptomycin. He returned to his unit 1.3.50.

On 4.3.50 he was readmitted with arthritis of both knee-joints. The B.S.R. was 35 mm. drop in one hour. There was a slight urethral discharge also present containing pus cells only. Pheneregan was started on 15.3.50, and he was given 1.05 grammes. The joints improved, but his urine remained hazy. This pyuria responded to irrigations and sulphadiazine.

On 31.3.50 he returned to duty.

On 17.4.50 seen again. No signs of arthritis.

On 22.5.50 very fit—playing football.

Case 3.—Pte. L. A. T.

Exposure to infection 27.5.50—no previous history.

On 9.6.50 admitted to hospital with arthritis and gonococcal urethritis. B.S.R. 18 mm. drop in one hour.

Treatment.—On 9.6.50 200,000 units of penicillin were given. There was no improvement to joints.

On 16.6.50 pheneregan started—2 tabs t.d.s., a total of 0.75 grammes was given. Response was satisfactory.

On 12.7.50 he was returned to duty.

On 16.10.50 report from B.M.H. Kinrara—arthritis—satisfactory.

On 6.1.51 seen again. Completely cured.

Case 4.—L.L. SP.F.

History.—No history of sexual exposure. Three weeks before onset of present arthritis had suffered from an attack of clinical dysentery which responded to sulphaguanidine. He later developed a mild conjunctivitis.

On 20.9.50 he was admitted to the medical ward with painful swelling of both knee-joints and right ankle-joint. Temperature 101°. The B.S.R. was 75 mm. drop in one hour. A diagnosis of rheumatic fever was made, and mist. soda salicyl. 15 grammes t.d.s. was given. No improvement was noticeable after ten days and he was referred.

On examination there was a polyarthritis involving both knee-joints and right ankle-joint, marked wasting and weakness of both quadriceps. A mild urethritis was present, a smear from which contained pus cells only. Urine contained pus and threads—cultures were sterile. Agglutination tests for the typhus and Brucella group were negative. The knee-joints were aspirated and turbid fluid containing many lymphocytes was removed.

A diagnosis of Reiter's disease (post-dysenteric syndrome) was made. 10.5 grammes of streptomycin and 42 tablets of phenergan were given. The patient was allowed up after seven days.

On 24.10.50 both knee-joints were normal. The B.S.R. was 4 mm. drop in one hour. There was slight stiffness of right mid-tarsal joints. The urine was clear. There was no urethral discharge.

On 26.10.50 sent for convalescence.

On 10.11.50 all joints were normal—patient feels well—returned to duty.

Case 5.—Spr. Abdul B. H.—1.

History.—Transferred from the surgical ward with arthritis of left knee-joint and left ankle-joint after having received penicillin injections. This was discontinued on 16.10.50 (1,100,000 units were given in all).

On 16.10.50 there was wasting of left quadriceps, synovitis of left knee-joint, arthritis of left ankle. The B.S.R. was 65 mm. drop in one hour. The urine contained pus cells.

Treatment.—Streptomycin 0.5 gramme t.d.s., phenergan tablets 2 t.d.s.

On 1.11.50 clinically no synovitis was present. Musculature was improving, and B.S.R. was 97 mm. drop in one hour. Continued physiotherapy, patient up.

On 8.11.50 patient still had pyuria and a mild urethritis, which resisted a course of sulphadiazine, and a second course of streptomycin. Pot. permang. irrigations eventually cleared this.

On 17.11.50 convalescence.

On 5.1.51 seen again. Has been doing full duty for four weeks. Is perfectly fit. B.S.R. was 13 mm. drop in one hour.

Case 6.—L.A. D.A. L.A.*

History.—Sexual exposure in September 1950. There was a previous history of urethritis in March 1950.

On 26.10.50 he developed a urethral discharge. On 30.10.50 conjunctivitis and penile sores developed. This was treated with 30 grammes of M&B 760.

On 6.11.50 he was admitted to the B.M.H. Singapore. There was present—swelling of both knee-joints which were painful, pain and swelling of left mid-tarsal joint, balanitis circinata, keratoderma of soles of both feet, and also superficial ulcers of the oral mucous membrane. The B.S.R. was 46 mm. drop in one hour. The urine contained pus cells.

On 8.11.50 treatment consisting of streptomycin 0.5 gramme t.d.s., and phenergan tablets 2 t.d.s. was commenced. 7.5 grammes of streptomycin and 1.05 grammes of phenergan were given.

On 27.11.50 all conditions had improved. The urine still contained threads due to a prostatic focus. This responded to pot. permang. irrigations. The B.S.R. was 28 mm. drop in one hour.

On 12.12.50 he was sent for convalescence.

On 29.12.50 looks and feels fit. All conditions now normal. The B.S.R. was 6 mm. drop in one hour. He was returned to full duty.

Case 7.—Cpl. McK——.

History.—Sexual exposure five weeks previously.

On 6.11.50 he reported with urethritis. The smear showed pus cells only. 200,000 units of penicillin were given.

On 7.11.50 the urine was hazy with pus. A urethral discharge was still present. An arthritis of his left knee-joint had developed. The B.S.R. was 12 mm. drop in one hour.

On 9.11.50 treatment consisting of: streptomycin 0.5 gramme t.d.s. and phenergan tablets 2 t.d.s. was commenced. 7.5 grammes of streptomycin and 36 tablets of phenergan were given.

On 14.11.50 the knee-joint was normal. The urine still contained pus due to prostatitis. This responded to a course of sulphadiazine and pot. permang. irrigations.

On 23.11.50 he returned to his unit on light duty.

On 8.12.50 the joint was normal and the urine was satisfactory.

On 8.1.51 seen again—perfectly normal.

CONCLUSIONS

7 cases are too few a number from which to draw any definite conclusion. The series was interesting from several points:

Case 1 had failed after several weeks of treatment including streptomycin, aureomycin, and penicillin.

Case 3 started as a non-specific urethritis which responded to 7.5 grammes of streptomycin. The patient later relapsed with arthritis as a complication.

Case 4 appears to be a true non-sexual post-dysenteric arthritis (Reiter's syndrome).

The patients were taken in sequence as they arrived in hospital and no failures have yet been encountered. An important point lies in the short duration of time necessary for recovery. In our previous study with hyperthermy and other methods of treatment this type of arthritis often required several weeks or months before recovery was made.

No toxic manifestations were noticed while the patients were receiving phenergan.

Best results are obtained when a course of at least 7.5 grammes of streptomycin is given with the phenergan. Previous study has shown that infective arthritis is as closely associated with non-specific urethritis as it is with gonorrhœa, and in our experience the above dosage of streptomycin will cure both urethral conditions.

I am indebted to Colonel J. H. Anderson, O.C., B.M.H., Singapore, and to Brigadier J. C. Collins, D.M.S., G.H.Q., F.A.R.E.L.F., for permission to publish this article.

REFERENCES

- HARKNESS (1949) *British Journal of Venereal Diseases*, 25, 185.
LEVY (1950) *Medical Journal of Malaya*, 5, No. 1.

SYPHILITIC MENTAL DISEASE IN THE AFRICAN NEGRO

BY

R. R. WILLCOX, M.D.

St. Mary's Hospital, London, W.2

THE first investigators of syphilis in Africa reported para-syphilitic conditions to be rare (Lambkin, 1908; Strong and Shattuck, 1930). Post-mortem signs of neurosyphilis have likewise been reported as relatively uncommon (from Uganda by Lowenthal, 1939; from South Africa by Becker, 1943). More recent work, however, by Billington (1945) and Davies (1947) in Uganda, Cook (1948) in Trinidad, and Willcox (1951) in Southern Rhodesia, has suggested that neurosyphilis in the Negro of the tropics is more common than was at first thought.

The total incidence of neurosyphilis in the American Negro is not far removed from that of the white man but disease usually assumes a meningo-vascular or purely vascular form, while tabes dorsalis and paresis are less common. Although the African is plagued by malaria, which condition might well influence the course of syphilitic disease, there is no other reason why he should not show the same susceptibility to the treponeme as his American descendant. The prevalence of purely vascular syphilis with signs in the nervous system, over that of true neurosyphilis, was observed in Uganda by Webb and Holliday (1927), and the comparative rarity of tabes dorsalis and G.P.I. in the African has often been stated (Gelfand, 1947). The frequency of epilepsy in Africa, leading to its sufferers acquiring mutilating burns from falling into open fires, has also been noted (McElligott, 1949), and the question as to whether meningovascular syphilis might be responsible for a considerable number of these has been considered by many. Willcox (1951), following a serological examination of 120 African epileptics, and the cerebrospinal fluid examination of 55, however, does not believe this to be the case.

That syphilis is a common cause of insanity in the African has been suggested by Muwazi and Trowell (1944), who considered that the idea that cerebral syphilis was rare was erroneous and that syphilis was in fact responsible for 30 per cent of the insanity at Mulago, Uganda.

During a venereal diseases survey of the African in Southern Rhodesia made by the author (Willcox, 1949) time was spent at a large African mental hospital in Bulawayo in an attempt to assess how far syphilis was responsible for the mental disease there. During the previous year a summary had been made of the results of serum tests for syphilis (Wassermann, Kahn, Kolmer or Rytz)

made on the 658 inmates on or soon after entry to the institution, in some cases many years previously. In August 1949 those cases (117 in number) who had shown positive or weakly positive serum tests for syphilis on admission, and a few other cases who had shown negative reactions but were considered as suffering from the disease, were subjected to a second serological test for syphilis, a clinical examination and an examination of the cerebrospinal fluid. This group, owing to admissions and discharges which had taken place since the previous year, although of equal number, did not strictly correspond to the first group although it was drawn from an approximately equal number of inmates. The results of both series of tests are given.

SEROLOGICAL TESTS FOR SYPHILIS ON 658 MENTAL HOSPITAL INMATES
PERFORMED ON OR SOON AFTER ADMISSION

The results of the previous serum tests for syphilis were as follows, doubtfuls being included with positives:

TABLE I
MALES

<i>Diagnosis</i>	<i>No.</i>	<i>Pos.</i>	<i>% pos.</i>
Schizophrenia	207	32	15.5
Congenital mental defect	68	10	14.7
Senile psychosis	21	2	9.5
Organic disease of brain	24	4	16.7
G.P.I.	6	6	100.0
Toxic psychosis	26	2	7.7
Manic-depressive psychosis	25	5	20.0
Secondary dementia	47	9	19.2
Unclassified	8	1	12.5
Epileptic	64	7	10.9
	<hr/> 496	<hr/> 78	<hr/> 15.72

TABLE II
FEMALES

<i>Diagnosis</i>	<i>No.</i>	<i>Pos.</i>	<i>% pos.</i>
Schizophrenia	68	28	41.2
Paranoid	1	—	—
Delusional insanity	2	—	—
Confusional psychosis	8	5	62.5
Involuntional psychosis	6	—	—
Toxic psychosis	1	—	—
Recurrent mania	4	—	—
Manic-depressive psychosis	11	2	18.2
Dementia	6	—	—
Secondary dementia	5	—	—
Senile psychosis	10	—	—
Epileptic psychosis	14	3	21.4
Cerebral arteriosclerosis	8	—	—
Congenital mental defect	16	—	—
Imbecile	2	—	—
	<hr/> 162	<hr/> 38	<hr/> 23.5

Many of the tests gave only weakly positive or doubtful reactions (e.g. 23 of the female cases) and, therefore, in many instances may have been biological false positive reactions due to malaria, etc., or the results of technical vagaries. It will, however, be noted in the males that, apart from those cases already diagnosed as G.P.I., only those with secondary dementia, organic disease of the brain and manic-depressive psychosis gave positive findings in higher frequency than the average while, in the females, those with confusional psychosis and schizophrenia did so.

On the other hand the serum positivity rates for the asylum inmates as a whole were not appreciably higher than those of the community from which they were taken. Thus of 1,527 hospital patients, tested by the Kahn test and drawn from a rural area of 8,000 square miles, there were 20·3 per cent of positive and weakly positive reactions—a figure appreciably reduced when known cases of venereal disease were excluded. Of 561 non-hospital adults tested in the urban areas of Salisbury and Bulawayo the percentage of positives and weakly positives was appreciably higher at 27·4 per cent, while of 1,368 hospital inmates tested in rural and semi-rural areas not covered by the above the percentage of positives and weakly positives was 35·5 per cent although this figure was reduced to 20 per cent when known cases of venereal disease were excluded. Thus not only were the overall figures of serum positivity in the asylum inmates often lower than for large sections of the outside population but the possibility of false positives and other upsets in the tests makes serum tests an unreliable guide if they are the only evidence that syphilis is responsible for insanity.

For these reasons 117 persons (77 male and 40 female) were retested to the Kahn test. Of these 4 had previously been shown to have negative reactions but were suspected as suffering from syphilis, 36 had doubtful and 77 positive reactions on or soon after admission to hospital in many cases a number of years previously. Examinations of the cerebrospinal fluid had been conducted on 29 and abnormal findings had been noted in 8. A number of cases, in which it had been considered that syphilis might have been responsible for the mental disease, had been given antisyphilitic treatment with weekly neoarsphenamine. Account is taken of this in the consideration which follows.

In the re-check to the Kahn test, employing the same technique as was employed in the mass surveys, 66 patients gave positive, 16 doubtful or weakly positive and 35 gave negative reactions. It is of course possible that a number or many of those originally showing negative reactions were in fact “false negatives” and might, had they been retested, have shown a positive result on the second occasion.

The same 117 persons were then subject to a clinical examination and an examination of the cerebrospinal fluid. The latter examination consisted of a cell count, total protein estimation by proteinometer and a Wassermann test performed on a fresh fluid under normal laboratory conditions. A white cell count of above 5 cells per c.mm., or a protein estimation exceeding 30 mg.

per cent, were considered abnormal. The results are depicted in Table III, all abnormalities being classed as positive.

TABLE III
RESULTS OF SERUM TEST FOR SYPHILIS AND CEREBROSPINAL FLUID EXAMINATION OF 117
SELECTED MENTAL CASES

C.S.F. positive	Blood positive	12
C.S.F. positive	Blood doubtful	2
C.S.F. negative	Blood positive	54
C.S.F. negative	Blood doubtful	14
C.S.F. negative	Blood negative	35

The various groups are considered separately.

(1) *Those with Positive Cerebrospinal Fluids* (14 Cases).

Of the 117 spinal fluids examined 14 were considered as showing abnormalities and 103 were negative. In 5 other instances the abnormality took the form of a rise in the protein content (40, 40, 50, 50 and 70 mg. per cent respectively) unaccompanied by other changes. 3 of these came from seronegative patients, 1 from a seropositive and one from a person with a doubtful serology and, as these fluids were either bloody or contained a gross excess of red blood cells, they were not classified as showing a positive result.

Of the 14 persons showing positive results 10 were male and 4 were female; 6 had been in hospital under six months, 11 for under one year, 13 for under two years, and 1 for nearly nine years. Previous serum tests for syphilis performed on or soon after admission were strongly positive in 10 and doubtful in 4. Cerebrospinal fluid examinations had previously been performed on 4, 1 showing a weakly positive Wassermann reaction, another a paretic Lange curve for which antisyphilitic treatment had been given, and 2 were normal. A previous history of venereal disease or "*njovera*" (a term used both for venereal syphilis and also for what was considered to be an extra-venereal syphilitic infection of childhood in some areas (Willcox, 1950)) was obtained only in 4, in 3 cases as an adult and in 1 as a child. 4 claimed to be married. 5 to be single and the status of the remainder was not recorded. 4 came from Northern Rhodesia, 3 from Portuguese East Africa and 7 from Southern Rhodesia.

The present serum Kahn tests were strongly positive in 8, positive in 4 and doubtful in 2. The Wassermann reactions on the cerebrospinal fluid were positive in 10, weakly positive in 1 and negative in 3. Total protein estimations (not including the 5 cases which were discarded) were normal (30 mg. per cent or under) in 10 and abnormal in 4 (40, 40, 40 and 60 mg. per cent). Cell counts were 5 cells per c.mm or under, in 6, 6-10 in 5, 11-20 in 2 and over 20 (28) in 1. 7 showed only one abnormality, 6 showed two and 1 showed three.

The diagnoses which had already been made were:—

G.P.I. 4, schizophrenia 3, manic depressive 2, epilepsy 1 and senile or confusional psychosis and cerebral arteriosclerosis 4. Clinical examination showed one patient with G.P.I. to have Argyll Robertson pupils, another to have increased reflexes, while another, with normal pupils, had absent knee and ankle jerks and a suspect Charcot knee, was believed to be a case of taboparesis. Only 1 patient had fits.

The findings of the cases with positive cerebrospinal fluids are given in Table IV. A critical examination will probably assess the 4 cases of G.P.I., 1 of the schizophrenics, both manic depressives and all 4 of the remainder (total 11) as probably syphilitic and two of the schizophrenics and the epileptic as doubtful. If all cases are included there were 3 positives in 40 females tested (7·5 per cent) as compared with 11 positives in 77 males (14·3 per cent).
(2) *Those with Negative Cerebrospinal Fluids and Positive Serum Kahn Reactions* (54 Cases).

54 patients, 31 male and 23 female, showed positive Kahn tests on the blood but negative cerebrospinal fluids. 3 had been in hospital for under six months, 14 for under a year, 22 for under two years while 32 had been inmates for longer than this time. Of these 24 had been in for over five and 4 for over ten years.

12 of the men had had previous V.D. or *njovera* (4 as children) as had 6 of the women all as adults. The previous V.D. and *njovera* rate for this group was thus 33·3 per cent which compares with only 20·0 per cent for the seronegative cases, 37 had previously shown a positive serum test for syphilis, 16 a doubtful reaction and 1 a negative reaction. 9 had had cerebrospinal fluid examinations performed on an average of seven and a half years previously with positive results in 2.

4 came from Northern Rhodesia, 1 from Portuguese East Africa and the rest from Southern Rhodesia. 10 were married, 11 were single and the status is not recorded in the remainder. 6, all males, showed abnormalities of the central nervous system involving the reflexes while 1 had a facial palsy. 5 suffered from fits and 3, all female, had aortic murmurs. The diagnosis which had been made were: Epilepsy 5; G.P.I. 2; congenital mental defect 6; secondary dementia 1; schizophrenia 30; post-traumatic psychosis 1; toxic psychosis 1; senile psychosis 3; cerebral arteriosclerosis 3; confusional psychosis 1 and involutional melancholia 1. 1 case had secondary syphilis on admission.

The Kahn tests were all positive on the blood. All of the cell counts showed 0·5 white cells per c.mm. and the protein estimations were all under 30 mg. per cent except one which was 50 mg. per cent in a bloody fluid. The Wassermann reactions on the spinal fluid were all negative. The cases in which syphilis was suspect are portrayed in Table V.

All persons in whom irregularities were noted in the central nervous system have been recorded as have all whose cerebrospinal fluid had previously shown abnormal findings. 3 females (2 schizophrenics and 1 with involutional melancholia) had aortic murmurs, 2 with regurgitation. These

TABLE IV
CASES SHOWING POSITIVE CEREBROSPINAL FLUIDS

Diagnosis	Prev. V.D.	Prev. blood test	Prev. serum Kahn	Cells	C.S.F. protein	W.R.	Clinical	Mental
1. G.P.I. male treated ..	Yes	Pos.	Pos.	12	10	Pos.	Argyll Robertson pupils	Dull, apathetic
2. G.P.I. male	?	Pos.	Pos.	28	40	Pos.	Absent knee and ankle jerks. Charcot knee	Owens aeroplane and hun- dreds of cattle. Thinks is in Johannesburg
3. G.P.I. male	No	Pos.	Pos.	7	20	Pos.	Leg reflexes in- creased	Apathetic. Bewitched by foreman at work
4. G.P.I. male	No	Pos.	Pos.	20	30	Pos.	N.A.D.	Elated. Has no testes. King George is God
5. Schizophrenia male ..	Yes	Pos.	Pos.	3	40	Neg.	N.A.D.	King and Queen speak to him and give instructions
6. Schizophrenia male ..	No	Pos.	Pos.	2	60	Pos.	N.A.D.	Foolish, aggressive, sent by God to preach Gospel
7. Schizophrenia female treated	?	Pos.	Pos.	7	20	Neg.	N.A.D.	Dull, apathetic, solitary
8. Epilepsy female	Yes	Doubt	Doubt	2	15	Doubt	N.A.D.	Threatening, fits
9. Manic-depres- sive male ..	No	Doubt	Doubt	2	10	Pos.	N.A.D.	Elated, grandiose, is an apostle. Owns hundreds of cattle and wives
10. Manic-depres- sive male ..	Yes	Pos.	Pos.	7	20	Pos.	N.A.D.	Bewitched. Hears voices
11. Senile psychosis male ..	Yes	Pos.	Pos.	0	15	Pos.	N.A.D.	Father of all Europeans. I am Hitler. I went to Germany and fought
12. Confusional psychosis male ..	No	Doubt	Pos.	5	10	Pos.	N.A.D.	

TABLE V
SERUM-POSITIVE—CEREBROSPINAL FLUID NEGATIVE CASES IN WHICH SYPHILIS WAS SUSPECT

Diagnosis	P.H. V.D.	I.P. mos	Prev. blood test	Prev. CSF test	Present Kahn test	Cells	C.S.F. protein	W.R.	Clinical	Mental	
1. G.P.I. male treated ..	No	155	Pos.	Pos.	Pos.	0	10	Neg.	Extensor plantars, sluggish pupils	Apprehensive. brother	Murdered
2. G.P.I. male ..	No	1	Pos.	Not done	Pos.	0	15	Neg.	Pupils fixed, re- flexes exagger- ated	Communes with God. Priests give him the duty of bring- ing the money to Christ	
3. Schizophrenia female ..	?	101	Pos.	Pos.	Pos.	1	30	Neg.	N.A.D.	Sulky, resentful, unwilling to conform to routine	
4. Secondary de- mentia male treated ..	No	116	Pos.	Neg.	Pos.	1	20	Neg.	Absent knee-jerks	Thinks is English	
5. Schizophrenia male ..	Yes	77	Pos.	Neg.	Pos.	0	20	Neg.	Right pupil greater than left	Dull, foolish. Thinks is in England	
6. Toxic psychosis male ..	Yes	9	Pos.	Not done	Pos.	0	15	Neg.	Right facial palsy	Animated, elated, purpose- less movements	
7. Post-traumatic psychosis male	No	28	Doubt	Not done	Pos.	0	10	Neg.	Reflexes increased right side	Stands transfixed	

13. Confusional
psychosis
female

No coherent replies, hallu-
cinated

N.A.D.

Neg.

40

8

Pos.

Doubt

No

14. Cerebral ar-
terio-sclerosis
male ..

Talks incessantly. Assaulted
at night by women.
Knows England

N.A.D.

Pos.

30

10

Pos.

Pos.

No

were the only patients in the entire series with this abnormality. An examination of the table will indicate that Case 7 may probably be excluded as non-syphilitic. The remainder, 5 males and 1 female, are considered as "possibles." Cases 1 and 2 are regarded as "probables" and the remainder as "doubtfuls."

It is reiterated that many or few of the cases with positive serum reactions may have been exhibiting false positives for one reason or another. On the other hand it is impossible to compute how many of those, in whom the serum test for syphilis was genuinely positive, suffered from mental disease due to vascular syphilis. Indeed one epileptic in this group, previously known to have a negative spinal fluid, was being treated with weekly neoarsphenamine. A brief summary is therefore made of the remainder of the seropositive cases, none of whom exhibited abnormal physical signs.

There were 5 epileptics. One, previously given treatment with neoarsphenamine was deluded that a policeman had brought her (perhaps correct), but also that Jesus had told her that her husband and a chicken had been killed; one was deteriorated, one dull and quarrelsome, one noisy given to meaningless conversation, and one manic.

Of 6 with congenital mental defects, 1 had been charged with murder but adjudged insane; 2 were apathetic and depressed; 1 was dull and foolish; another, a prostitute, apathetic and given to meaningless conversation, and another heard voices, thought she was in a town many miles away and had been bewitched.

3 were diagnosed as having senile psychosis. One was dull and foolish, another had a defective memory and one had been charged with assault. Of 3 with cerebral arteriosclerosis one was dull, fatuous and with a poor memory, one completely disorientated and could give no coherent reply and another, also displayed a poor memory, heard voices and resisted examination. One with confusional psychosis was dull and of slow cerebration. One involutional melancholic was depressed with hypochondriacal symptoms.

The remainder consisted of 28 schizophrenics of which 17 were male and 11 female. Of the males one was vacant, another mumbled to himself and claimed to be continually assaulted, another who was sometimes noisy sat huddled up, 4 were catatonic and resistant, another weepy and violent, another animated, another claimed that the dead spoke to him, another was elated, another was apathetic and claimed to have been in England the previous week, another was foolish and disorientated and thought he was King of Mashonaland, while another feared that the mental orderlies were trying to persuade him to join another tribe. One muttering, restless individual was pursued by shadows and voices while another apathetic man thought that the medical officer wished to kill him. Another said he was prompted by a bioscope (cinematograph) in the ward and urged to kill.

Of the females one was depressed believing her relatives to be in the room, another made irrelevant speeches believing herself to be in Johannesburg, another was aggressive and thought that her husband was a European chief.

another was foolish and talked nonsense, 3 were catatonic and resistant, 1 with foul habits laughed to herself, another was unresponsive and resistant but noisy at night, 1 was stuporose and 1 was morose, asocial and persecuted by a witch doctor.

The above résumé of the mental states of non-syphilitic cases is given partly so that a comparison may be made with those in whom the findings were positive, and partly for general interest as they mirror, if in a distorted form, the impact of British civilization on the African mind.

(3) *Those with Negative Cerebrospinal Fluids and Doubtful Serum Kahn Reactions* (14 Cases).

13 males and 1 female with normal cerebrospinal fluids had doubtfully positive serum tests for syphilis. One came from Northern Rhodesia and the remainder from Southern Rhodesia: 4 were married, 3 single and the status of the remainder was unknown. 3 gave a previous history of venereal disease all as adults. Previous serum tests for syphilis had given positive reactions in 8, doubtful in 5 and negative in 1. One had been in hospital for under six months, 4 for under a year and 7 for two to fifteen years. 5 had previously had a cerebrospinal fluid examination on an average of nine years previously, all with negative results.

The diagnoses were as follows: G.P.I. 2; dementia 1; epilepsy 1; congenital mental defect 2; schizophrenia 5; organic disease of the brain 2; and delusional psychosis 1. Those cases in which syphilis was suspect are tabulated in Table VI.

One additional case, a male with organic disease of the brain, had a protein content in the cerebrospinal fluid of 70 mg. per cent but the Wassermann reaction was normal. As the fluid was bloody this was ignored. Both of the G.P.I. cases above (Case 1 and Case 2), both showing clinical signs, may be regarded as cured or "burnt-out" neurosyphilis. Case 3 with dementia may likewise have been cured by the weekly neoarsphenamine which had also been given to this case. Case 4, on the other hand, is more likely to have been caused by a vascular accident from some other cause than syphilis and, together with Case 5 included only because treatment with neoarsphenamine had been given, may probably be discounted.

The remainder of this group, all of whom showed a doubtful Kahn test on the blood and a negative cerebrospinal fluid, with no gross central nervous system or cardiac irregularities, had previously exhibited a positive serology in 4 and a doubtful serology in 5. A man, with a congenital mental defect, had been summoned for indecent exposure, a woman, with the same complaint, was vacant and dirty. A male with delusional psychosis had persecutory ideas and there was also a male epileptic who previously had shown a positive blood test but a negative cerebrospinal fluid. There were 4 schizophrenics, 3 male and 1 female. One had persecutory ideas and gesticulated, another was disorientated and muttered gibberish, another was foolish, noisy

TABLE VI
SERUM DOUBTFUL—CEREBROSPINAL FLUID NEGATIVE CASES IN WHICH SYPHILIS WAS SUSPECT

<i>Diagnosis</i>	<i>Prev. V.D.</i>	<i>Prev. serum test</i>	<i>Prev. serum test</i>	<i>Cells</i>	<i>C.S.F. Protein</i>	<i>W.R.</i>	<i>Clinical</i>	<i>Mental</i>
1. G.P.I. treated male (I.P. 15 years) ..	No	Pos.	Doubt	1	20	Neg.	Left pupil inactive	Thinks he owns the place, is a doctor, brother poisoned him
2. G.P.I. treated male (I.P. 2½ years) ..	No	Pos.	Doubt	5	10	Neg.	Argyll Robertson pupils; reflexes exaggerated	Depressed, melancholic, dirty
3. Dementia male treated (I.P. 20 years) ..	No	Pos.	Doubt	1	Not done	Neg.	N.A.D.	Foolish, asocial, does not know name, hallucinated
4. Organic disease of brain, male (I.P. 8 months)	No	Neg.	Doubt	0	10	Neg.	Had transient hemiplegia. Fits	Apathetic
5. Schizophrenia treated male (I.P. 6 years)	No	Pos.	Doubt	2	10	Neg.	N.A.D.	Paranoid. Shouts and mutters

and restless, and another with persecutory delusions concerning the police claimed to be in communication with God.

(4) *Those with Negative Cerebrospinal Fluids and Negative Serum Kahn Reactions* (35 Cases).

35 patients, 22 of whom were male and 13 female, had both negative bloods and spinal fluids. In all the serum Kahn test was negative being supported by the Wassermann test in 12 instances. The cell counts were all under 5 white cells per c.mm., and the C.S.F. Wassermans were all negative. The total protein estimations were under 30 mg. per cent in all except three bloody fluids which contained 40, 40 and 50 mg. per cent respectively. 12 were married, 8 were single and the status of the remainder was unknown. 2 came from Nyasaland, 4 from Northern Rhodesia, 2 from Portuguese East Africa and the remainder from Southern Rhodesia. 7 had been in hospital for under six months, 10 for under a year, 13 for under two years and 22 for longer than this time, of which 15 had been in for five years or over and 7 for over ten years.

Previous serum tests for syphilis (Wassermann, Kahn, Rytz or Kolmer) had shown positive results in 22, doubtful in 11 and negative in 2. The latter 2 cases were thought possibly to be the result of syphilis, and were included in the investigation. 7 gave a previous history of *njovera*, in 5 instances as children, 13 talked nonsense and 5 had fits. 11 had had a cerebrospinal fluid examination on an average of eight years previously with abnormal findings in 4. 4 showed pupillary abnormalities.

The diagnoses were: Confusional psychosis 1; organic disease of the brain 2; cerebral arteriosclerosis 2; G.P.I. 4; paranoid 1; congenital mental defect 1; epilepsy 5; schizophrenia 14; manic-depressive psychosis 4; involutional psychosis 1. Anti-syphilitic treatment with neoarsphenamine had already been given to those showing positive signs.

On the basis of past diagnosis, clinical findings and previous cerebrospinal fluid pathology, 10 possible cases of neurosyphilis were suspected (Table VII).

Case 1 is considered doubtful, the only evidence of syphilis being a dubious pupillary abnormality. Case 2, with no confirmatory evidence, may probably be discounted. Case 3, on the other hand, was an obvious case of G.P.I., the C.S.F. findings having been rendered normal by treatment. Case 4, in which pathological support is lacking but in which similar mental symptoms were encountered, is included. Case 5 appeared to have had a cerebral thrombosis, possibly syphilitic. Cases 6, 8 and 10 are included on account of previous positive findings in the C.S.F. in all and pupillary abnormalities in one. Case 7 is regarded as a doubtful one on account of the delusions, Case 9 likewise because of pupillary abnormalities.

The non-syphilitic members of this group included one man with a fixed stare and no insight; another sullen giving no coherent replies and diagnosed

TABLE VII
SERUM NEGATIVE—CEREBROSPINAL FLUID NEGATIVE CASES IN WHICH SYPHILIS WAS SUSPECT

<i>Diagnosis</i>	<i>I.P. mos.</i>	<i>Prev.</i>		<i>Prev.</i>		<i>Clinical</i>	<i>Mental</i>
		<i>V.D.</i>	<i>Prev.</i>	<i>blood</i>	<i>C.S.F.</i>		
1. G.P.I. male treated ..	180	No	Doubt	Neg.	Doubtful reaction left pupil	Thinks is dead and rotten, wants to cut throat	
2. G.P.I. male treated ..	108	No	Doubt	Not done	N.A.D.	Carefree, attacks people, builds delusions on doctor	
3. G.P.I. male treated ..	104	No	Pos.	Pos.	Argyll Robertson pupils	Grandiose. Owns 800 cattle, more than paramount chief. Has thousands of pounds from Kimberley	
4. G.P.I. male treated ..	36	No	Neg.	Not done	N.A.D.	Grandeur. Owns all the cattle at home	
5. Secondary dementia paranoid male treated	144	No	Pos.	Neg.	Left pupil shows doubtful reaction. Left Babinski's sign	Stupid, hostile, depressed. Speaks in parables	
6. Congenital mental defect treated, male	108	Yes	Pos.	Pos.	N.A.D.	Dull, low-grade, foolish	
7. Organic disease brain, male	24	No	Pos.	Not done	N.A.D.	Grandeur, thinks is chief	
8. Involutional psychosis female treated ..	84	No	Pos.	10 cells	Irregular pupils	White man makes other natives laugh at her	
9. Schizophrenia female ..	86	Yes	Pos.	Neg.	Pupils do not react to light	Maniacal. "Talks with Christ. Married to Jesus"	
10. Confusional psychosis female	9	No	Pos.	Pos.	N.A.D.	" Built God in order to live." Noisy	

as "Organic" disease of the brain, but whose blood-stained cerebrospinal fluid had a protein content of 70 mg. per cent; another male idiot demented and rambling; another, diagnosed as cerebrosal arteriosclerosis, who had attacked his father and set fire to a Mission. There were 5 epileptics, 1 of whom had bitten another native, another was resentful and occasionally violent, another showed Korsakoff's syndrome, another sullen and resentful while yet another was incoherent and foolish. There were 4 with manic-depressive psychosis. 2 in a manic and 2 in depressed states and there were 12 schizophrenics. The latter were either statuesque, given to foolish chatter, catatonic, noisy, given to micturating in cups, refusing to wear clothes or escaping from the ward, melancholic, with exalted ideas, or indulging in rambling conversation. One claimed to converse with God who told him not to eat meat and, at the same time, thought he was King of America. One had had a leucotomy operation.

SUMMARY AND CONCLUSIONS

(1) It has been claimed by some that syphilis is responsible for from 17-30 per cent of insanity in the African Negro.

(2) During a Venereal Diseases Survey of the African in Southern Rhodesia, undertaken in 1949, this matter was investigated.

(3) Serological, clinical and cerebrospinal fluid examinations were made of 117 African mental hospital inmates, 77 of whom had shown positive and 36 doubtful results to serum tests for syphilis made soon after admission. 29 had previously had a cerebrospinal fluid examination with abnormal findings in 8. A number had been treated with neoarsphenamine.

(4) Of the 117 patients 77 were male and 40 were female. 53 had been in hospital under two years and 64 for over that time. The majority had come from Southern Rhodesia but a number had been born in Nyasaland, Northern Rhodesia and Portuguese East Africa.

(5) 32 (27.4 per cent) gave a previous history of venereal disease or *njovera*, a type of endemic syphilis. In 22 instances the disease was contracted as an adult and in 10 instances as a child.

(6) The serum test for syphilis (Kahn) gave 66 positive results on the second examination while there were 16 with weakly positive or doubtful and 35 with negative findings.

(7) Ignoring four cerebrospinal fluids showing a raised protein content because they were contaminated with blood there were 14 cases with fluids showing abnormal findings (12.0 per cent).

(8) The patients showing normal cerebrospinal fluids were re-examined in the light of previous pathological and present clinical findings, and in the light of treatment given. A further 22 cases, which might be reduced to 18 on critical examination, of possible neurosyphilis were discovered.

(9) In the group of 117 mental patients 32-36 possible cases of neurosyphilis were discovered (27.3-30.8 per cent). This group had previously been selected

from approximately 650 asylum inmates therefore the actual incidence might be less than one-fifth of these figures.

(10) It is noted that 29 of the possible positives were obtained from the 77 males tested (37·7 per cent) while of 40 females tested there were only 7 possible cases (17·5 per cent).

(11) The diagnosis of 658 mental hospital inmates, and their serum tests for syphilis taken on or soon after admission, are tabulated.

(12) There is nothing to suggest from the incidence of serum positivity of 78 African epileptics, or the subsequent cerebrospinal fluid examination of 13, that syphilis was responsible for the epilepsy.

(13) That neurosyphilis in the African usually assumes meningovascular or vascular forms, and much less commonly paresis and locomotor ataxia is affirmed.

(14) Although true neurosyphilis appears to be responsible for a smaller proportion of insanity in Southern Rhodesia than might have been expected, no estimate can be given of the numbers of cases in which purely vascular lesions may be responsible.

ACKNOWLEDGMENTS

Grateful acknowledgments are expressed to Dr. R. M. Morris, Secretary for Health, Southern Rhodesia, to Dr. J. Leggate, Senior Government Medical Officer, Bulawayo, and to the staff of the Ingutsheni Mental Hospital of that city for granting the necessary facilities for the conduct of the investigation; also to Mr. Ernest and Mrs. Sheila Boulter for the performance of the pathological work.

REFERENCES

- BECKER, B. J. P. (1943) Cardiovascular Disease in the Bantu and Coloured Races of South Africa. (Thesis presented to the University of Witwatersrand.)
- BILLINGTON, W. R. (1945) Cambridge Doctorate thesis. Quoted by Davies.
- COOK, M. J. (1948) *J. vener. Dis. Inform.*, **29**, 204-207.
- DAVIES, J. N. P. (1947) *East African Medical Journal*, **24**, 437-449.
- GELFAND, M. (1947) *The Sick African*. Stewrat and Co., Cape Town, 488-9.
- LAMBKIN, F. J. (1908) *J. Roy. Army Med. Corps*, **2**, 149-162.
- LOWENTHAL, L. J. A. (1939) *Urol. Cut. Rev.*, **43**, 199.
- McELLCOTT, G. L. M. (1949) *Practitioner*, **162**, 390-395.
- MUWAZI, E. M. K., and TROWELL, H. C. (1944) *East African Med. J.*, **21**, 2.
- STRONG, R. P., and SHATTUCK, G. C. (1930) *The African Republic of Liberia and the Belgian Congo*. Cambridge University Press, 272 *et seq.*
- WEBB, W. L., and HOLLIDAY, M. (1927) *Trans. Roy. trop. Med. and Hyg.*, **21**, 1.
- WILLCOX, R. R. (1949) Report on a Venereal Diseases Survey of the African in Southern Rhodesia. South Rhodesian Govt.
- (1951) In press.
- (1950) Textbook of Venereal Diseases. Heinemann, London, p. 282.

AMBULANCE CONVOY RECEPTION IN A GENERAL HOSPITAL

BY

Colonel G. MOULSON

Late Royal Army Medical Corps

IN a previous article entitled "The Administration of a General Hospital," published in this Journal, reference was made to the important psychological effect of good reception on every patient admitted to hospital.¹

Convoy reception being merely admission in bulk differs no whit in that respect from individual admissions. On account of the numbers of patients and staff engaged, it does, however, call for most meticulous preparation, if the operation is to be accomplished efficiently and smoothly.

Patients, arriving in Convoy, have usually travelled long distances, sometimes in pain, and often sustained by indifferent and inadequate diet and refreshment in transit. On arrival at the admitting hospital, they are therefore liable to be at their lowest ebb of vitality and in a state of maximum irritability.

From the moment of de-planing, de-training, or disembarking, according as to whether they have been moved by air, land or water, the whole procedure for getting them into their hospital beds must go like clockwork. This will only happen, if Convoy reception is carefully planned and timed as an operation; laid down in clear and concise standing orders; and imparted to and drilled into every member of the medical, transport and administrative staff participating in the various stages. Furthermore, like any good act it will require rehearsal.

Certain essential differences exist between ambulance transport by air, land or water which have a significant effect on the Expected Time of Arrival (E.T.A.).

To the staff of the receiving hospital the E.T.A. is a matter of great importance, because the efficient reception of large convoys, e.g. 200 patients and over, requires the attendance of the whole staff on duty during the day or the night staff, supplemented to an equivalent extent, should the convoy arrive by night.

Air transport is so dependent on availability of aircraft, flying weather, inter-Service signals and liaison between the R.A.F. and the Army that immediate conveyance of patients from an Aerodrome, at the time of landing, to outside hospitals is difficult to achieve, if long waits and hitches are to be

¹JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, 96, No. 2, Feb. 1951, 92-97.

avoided. It is generally conceded that a staging unit of the Medical Reception Station type must be sited on the arrival aerodrome for interim treatment, refreshments, collection and ambulance loading, before despatch to a general hospital by a motor ambulance convoy.

Conveyance by water requires division into A, River Transport, and B, Sea Transport, on account of dissimilarity between the conditions obtaining.

A. River transport is usually by a little ship sometimes indifferently navigated, with barges towed or lashed alongside. Stretchers are sandwiched into every available inch of deck space and walking casualties find room not required for any other purpose. Sorting and treatment of patients is very difficult on account of congestion, and food and refreshment provided are liable to be of a low order. On rivers like the Tigris, stranding at river bends or on uncharted sand or mud banks is a frequent happening and the variation between the E.T.A. and the actual time of arrival may be a matter of hours, increasing proportionately with the length of the river voyage undertaken. Uncertainty about the time of arrival combined with poor conditions of travel in this form of transport render a staging hospital advisable at the river port of disembarkation, similar to that provided on aerodromes in the case of an air lift.

B. Sea transport is usually effected in ocean-going steamers varying in comfort from the well-fitted hospital ship to the improvised tramp steamer. Whichever type is used, conditions are suitable for sorting, treatment, and nourishment. The E.T.A. can generally be transmitted by signal forty-eight hours before arrival together with the number and type of casualties. The time of disembarkation will depend on port and shipping considerations and will usually be arranged to take place in daylight.

Conveyance by rail is satisfactory when ambulance coaches are available. that permanent way is adequate, and no bottle-necks in traffic movements exist. It is most desirable that the running of ambulance trains should be given high priority next below troop trains carrying urgent reinforcements of troops and munitions. Long waits on sidings are bad for patients' morale, tie up rolling stock unnecessarily, and render an accurate E.T.A. for the final destination impossible. Over long distances, where travelling facilities are bad and bottle-necks exist, one or more staging hospitals sited *en route* may be necessary for rendering a journey bearable for patients.

Medical responsibility in respect of actual trains should not go further than staffing, equipping, and submitting passenger bids to movement control. Movement by rail is a matter for Movement Control working in liaison with the railway authorities. Railway liaison medical officers, appointed in one theatre of operations during the 1939-45 war, were superfluous and liable to be a hindrance rather than a help.

Whereas in disembarkation from ships, stretcher cases may be more conveniently moved first, in de-planing or de-training the reverse usually obtains. Whatever the method of unloading may be, the rule for loading ambulances should always be stretchers first.

In order to appreciate the importance of an E.T.A. which coincides with actual time of arrival, it must be realized that convoy reception at a hospital entails a major effort on the part of the staff. It necessitates cessation of routine hospital work when occurring during normal duty hours and interference with recreation and sleep after those hours.

Bearer squads with representatives of the Quartermaster's staff must be awaiting the arrival of the train at the station to de-train patients and baggage and load on to waiting vehicles; other squads are necessary to off-load stretchers from the ambulances at the hospital reception centre; whilst, in a large hospital spread over a wide area, a third detachment may be necessary for guide and bearer work, if wheeled transport is required for distribution of patients to their allotted wards. Also required on duty at the Reception Centre are specialists, preferably Officers i/c Divisions for ward allotment; clerks for admission records; nursing staff for resuscitation; catering staff for refreshments; Red Cross and Welfare workers for amenity duties; and interpreters, if patients from allied Armies are expected. Early attention to patients on admission requires the attendance of medical officers and a full nursing staff on duty in the receiving wards; kitchen and dining hall staff must be engaged in the preparation and service of a hot meal; whilst the remainder of the Quartermaster's staff are fully occupied with the issue of extra stores and equipment and the unloading and disposal of baggage.

Although not always the case, it must be assumed that stretcher patients are in greater need of rest and treatment than the ambulant and therefore every effort should be made to get them into their hospital beds first.

Bed allotment, without error, is most easily carried out by the provision of coloured discs, using different colours for each department of the hospital, e.g. red for surgical, blue for medical, green for mental, yellow for V.D., etc. Plywood discs of size 2 in. x 2 in. are quite easily cut from tea boxes and painted by unit labour. On one side of the disc, in black or white figuring, is the number or letter denoting the ward; on the reverse side is the number of the bed in the ward.

In anticipation of the arrival of a Convoy, the Divisional Wardmaster compiles an "empty bed" state for the wards in his Division and picks out the numbered discs corresponding to the empty beds in each ward, earmarked for receiving. This presupposes that all ward beds are clearly numbered, as they should be, and that every bed in the hospital is represented by a disc. The Divisional Wardmasters are present with the officers in charge of Divisions, when sorting the patients, giving to each a coloured disc in accordance with his allotted ward and bed and at the same time striking the bed off his "empty bed" state. The coloured discs are subsequently collected by the ward sisters and returned to the reception centre the following day. There, all discs are re-checked to ensure that one exists for every numbered bed in the hospital.

The practice of admitting convoy patients *en masse* into "detained" wards in the first instance and distributing them to their correct wards at leisure, is

not favoured as it involves unnecessary disturbance of the patients, delays treatment by those most competent to undertake it and may even result in emergency cases being overlooked.

Information as to the clinical composition of a convoy is usually, and always should be, signalled to the receiving hospital at least forty-eight hours in advance and therefore patients' hospital kits are most conveniently delivered to and receipted by ward staff before the convoy arrives. Half a dozen excess kits for any given ward is a definite advantage in that it allows some latitude in providing the patient with a suit of "hospital blues" that will fit him.

A plan for the approach and layout of a convoy reception centre is suggested in fig. 1 and is largely self-explanatory. Certain points require emphasis.

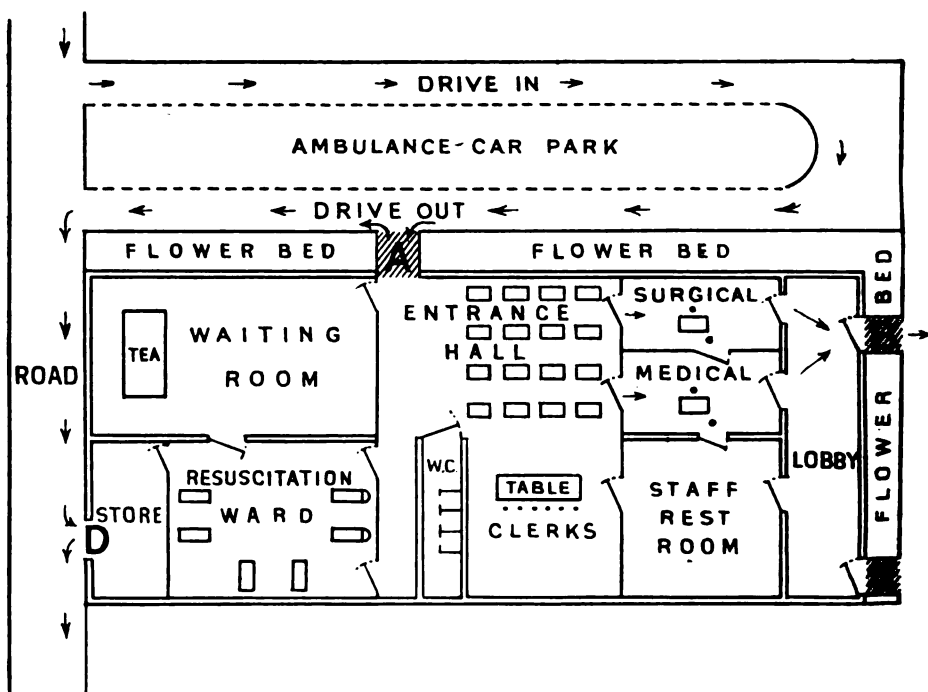


FIG. 1.

- A. Patients' Entrance
 - B. Patients' Exit
 - C. Staff Entrance and Exit.
 - D. Protected Hatch to Blanket and Stretcher Store.
- } with Ramps.

(1) A suitable ambulance car approach and exit with car park is essential.

(2) If the floor of the reception centre is raised above ground level, the patients' entrance and exit must have ramps.

(3) The waiting room must contain a tea buffet and as good seating accommodation and interior decoration as is obtainable.

(4) Well-tended flower beds on the entrance and exit sides have an æsthetic and therefore a psychological value.

(5) The reception centre can be used for routine admissions when not in use for receiving convoys.

(6) The size of the reception centre required varies with the size of the hospital and the magnitude of convoys expected.

From fig. 1 it will be seen that ambulances deliver patients with blankets and stretchers at entrance A, pass round to hatch D to replace blankets and stretchers and return to the railway station for a second lift or alternatively to their R.A.S.C. unit if not required for further duty. The patients enter the reception hall, stretchers to the left, walking cases to the waiting room on the right. The clerical staff visit the patients on stretchers to obtain particulars. The first patients documented are immediately passed through into medical and surgical sorting rooms in accordance with the diagnosis on their A.F. Med. 26. The remainder follow as rapidly as possible.

As soon as the documentation of stretcher cases has been completed, the clerks withdraw behind their tables and queues of walking casualties are formed in front of each for a similar purpose.

As the stream of patients flows through the sorting rooms, beds are allotted by the method already described. A quick glance at each patient and his accompanying A.F. Med. 26 afford sufficient information to the officer in charge of a Division for purposes of disposal. The suitable disposal of patients is his responsibility, hence the greater satisfaction obtained, when the officers in charge of Divisions themselves perform this duty in person rather than by delegation to their more senior specialists.

Patients, after being sorted, leave the reception centre via exit door B. Stretchers are transported to wards by ambulances, wheeled stretcher carriage, or hand carriage as the layout of the hospital demands. Convalescent hospital patients can usefully be supplied as guides for walking cases and assist in carrying their personal equipment and hand grips.

As many as six ambulances may be required for the internal distribution of stretcher cases, when the hospital site covers a large area.

Foolproof Standing Orders are the back-bone of all routine Military procedures. To this convoy reception is no exception.

Convoy Standing Orders may be conveniently divided into

I. External action; II. Internal action

I. External action relates to that which happens outside the hospital. In the case of de-training, this includes: the detail of officers and other ranks required to meet the train for duty as bearer and baggage personnel; orders for de-training and ambulance loading; routeing of ambulances from Railway Station to hospital with flagging if necessary; disposal of patients' documents received from O.C. ambulance train; orders for ambulance unloading on arrival

at reception centre; replacement of blankets and stretchers from ambulance train and ambulances; collection and transport of baggage.

II. Internal action comprises detailed orders to the principal agents participating in reception, refreshments, resuscitation, documentation, sorting, distribution to and finally admission to the wards. With slight modifications similar standing orders may be issued for receipt of convoys by air or sea.

All efforts must be directed to obtaining a quick, quiet flow of patients through the reception centre to the wards. There must be no roughness, jostling or muddle, no shouting and no hold-ups. Refreshment in the form of hot sweet tea must be available in the waiting room. Patients needing resuscitation must be detained in the ward allotted for that purpose until pronounced fit to move.

SUMMARY

- (1) Convoy reception should be planned as an operation.
- (2) Detailed Standing Orders are necessary for putting the operation into effect.
- (3) A well-designed reception centre, whether tented, hutted or of permanent construction is essential.
- (4) Patients are often in poor shape and easy reception is of great psychological and medical value.
- (5) A resuscitation ward should be included in the reception centre.
- (6) Refreshment during and immediately after admission is important.
- (7) A system for bed allotment has been described.
- (8) An adequate staff of clerks (i.e. up to six) is essential for speedy and accurate documentation.
- (9) An accurate E.T.A. is the most important single factor in putting an operation for convoy reception into effect.
- (10) Where the E.T.A. is likely to be unreliable as in air lifts and river voyages, staging medical units should be installed at aerodromes and river ports respectively.
- (11) A system, evolved on the lines described above, achieved an admission rate of two patients per minute in a convoy of three hundred and was tested in the receipt of many large convoys.

Methods of convoy reception have been described before in this Journal. but sick convoys of any size are rarely encountered in peacetime and therefore between wars a most important piece of hospital administration is apt to be overlooked.

THE ROYAL SANITARY INSTITUTE HEALTH CONGRESS, 1951

BY

Lieut.-Colonel C. L. DAY

Royal Army Medical Corps

Department of Army Health, R.A.M. College

THE annual congress of the Royal Sanitary Institute was held at Southport from April 23–27, 1951. The President of the Congress, the Right Hon. the Lord Hesketh, D.L., was installed by Dr. J. Greenwood Wilson (M.O.H. Cardiff), chairman of the council of the Institute.

The variety of interests is shown by the number and title of sections—Preventive Medicine, Engineering and Architecture, Maternal and Child Health, Veterinary Hygiene, Food and Nutrition, Housing and Planning, Tropical Hygiene and Hygiene in industry. In addition there were conferences for Medical Officers of Health, Engineers and Surveyors, Sanitary Inspectors and Health Visitors.

A total of some 2,300 attended of whom 1,800 were delegates, many of them from overseas.

Sir John Charles, C.M.O. Ministry of Health, chose “John Simon and some contemporaries—a Brief Retrospect” as the subject of his Presidential Address in the Section of Preventive Medicine. In his introductory remarks Sir John mentioned the far-reaching changes in medical education now taking place. Medicine was becoming more comprehensive, dealing with the individual man as an entity. As a result of this the old antithesis between “prevention” and “cure” will be banished. It was noted that the term “preservative” medicine was used in place of “curative” medicine.

The opening paper in this section was on “Rheumatic Diseases” by Sir Henry Cohen, Professor of Medicine, University of Liverpool. He pointed out the vast size of the problem. In 1937 a planned community survey in Aberdeenshire showed that 11·4 per cent of all doctor attendances during an average winter were for rheumatic diseases. In the U.S.A. in 1935–36 with a population of 127 millions, 3 millions had arthritis. It is certain that there are at least 250,000 arthritics in Great Britain. It is important to remember, in considering the economic and social implications of arthritis, that 70 per cent of the victims are under 55 years of age. Sir Henry warned his listeners against too much enthusiasm for the use of “Cortisone.” It is well to remember that at 35 dollars

a gramme it would cost £112 millions a year to treat the 250,000 patients in this country—assuming that such large amounts of the drug were available. Much controlled investigation on the influence of such factors as humidity, temperature, draughts and conditions of work on the chronic rheumatic diseases are required. The answers to these fundamental problems must be forthcoming before there can be "Prevention."

In the Sanitary Inspectors Conference much interest was taken in the paper on the topical subject of "Food Hygiene, Theory and Practice" by the chief sanitary inspector of Guildford—Mr. H. A. Perry.

After detailing the various legal powers, the importance of voluntary co-operation and education (particularly in school children) was stressed. Some 65 clean food organizations have been set up—the majority sponsored by local authorities but some by trade associations with the guidance of Public Health Officers. In general the codes of practice, to which these organizations work, are based on existing laws; but requirements are more clearly defined and, in some cases, demand a standard higher than that which can legally be enforced.

Professor Pippard, in his Address to the Section of Engineering and Architecture, stressed the few facilities which exist in this country for post-graduate studies in Public Health Engineering—a lack emphasized if the position here is contrasted with that in the United States of America. Opportunities for using specialized education in Public Health Engineering are numerous—in the municipal field, in the prevention of river pollution and in water supply and in many countries abroad, in the control or extermination of insect and other disease carriers. It is essential that if the medical scientist and the engineer are to co-operate to the best advantage each should know something of the other's work. Useful instruction in this connexion is being done in the University of London in the organization of post-graduate courses jointly by the Imperial College of Science and Technology and the London School of Tropical Medicine and Hygiene, both of which are Colleges of the University. "Young engineers and young physicians will work together and it is hoped learn something at least of each other's outlook and approach."

Dr. A. Massey, Chief Medical Officer, Ministry of National Insurance, gave the Presidential Address to the Section of Hygiene in Industry. He said that the extent to which the industrial health services should or can be related to the National Health Service has been much under discussion and has recently engaged the attention of the Dale committee whose report was published in February last.

As background to the council's deliberations was the need to avoid overlapping services and to use all resources to the best national advantage.

"The main recommendation is for the setting up of a representative standing

joint advisory committee in England and Wales (with an equivalent committee for Scotland) with consultative functions and their co-ordination with the general health service. The committee saw the desirability of some eventual comprehensive provision for occupational health, but thought that much more experience and experiment were first necessary."

A point mentioned by Dr. Massey was the "veritable hunger" for morbidity information in all branches of social medicine. The death certificate had played its pioneer part; sickness statistics from social surveys and hospital records are valuable, but it seemed that in the medical certificate of incapacity in connexion with insurance claims there may be a new and major source of information.

Professor Fred Grundy, Mansel-Talbot Professor of Preventive Medicine, University of Wales, read the opening paper at the conference of Medical Officers of Health. His subject was "Basic Research and the Medical Officer of Health."

He classified the various investigations commonly included under the heading, "Social—medical research" into two groups; the first dealing with those factors which are primarily administrative such as the medical care—needs, and the second being Basic research—anthropometric and epidemiological. He concentrated on the sub-group—"epidemiological," the word being used to mean "the orderly study of incidence of disease, both communicable and non-communicable, for the purpose of elucidating ætiologies."

In discussing the problem of organization of research Professor Grundy was of the opinion that central design and collation with local collection and scrutiny is the right line to pursue. The isolated local survey is necessarily local in its application. Conclusions from local data have local validity only. The speaker realized that this advocacy of more centralization of research was likely to be viewed with some misgiving. "It is a question of sustaining the individual's sense of the importance of his particular part in a big undertaking—a question of ensuring that he does not feel himself to be a mere cog in the machine."

Personal prestige has to be subordinated—"Satisfaction must derive from applying skill to the tedious and difficult task of compiling accurate records which others will process; and with suitable acknowledgments, will ultimately publish."

He suggested that the more active the interest of the Society of Medical Officers of Health in research the more likely are its members to regard themselves as real participants in these projects and he urged that basic research should not play second part to other interests of the society.

The meeting of the Tropical Hygiene Section was of particular interest to Army Medical Officers. The Presidential Address, "The Function of Medical Services in the Tropics," was given by Professor T. H. Davey, Professor of Tropical Hygiene, Liverpool School of Tropical Medicine.

He pointed out that the chief diseases of the backward areas of the tropics were fundamentally due to an unhealthy environment and many faulty habits of life. He instanced the main causes of mortality and morbidity in such areas as malaria, yaws, schistosomiasis (community wide endemic diseases) and cerebrospinal meningitis, typhoid and louse-borne relapsing fever, sleeping sickness, smallpox and malaria (community wide epidemic diseases).

The present hospital organization which is a heavy financial burden on the country plays no significant part in the reduction of epidemic or endemic disease. "We must adopt the greatest good for the greatest number. On this reckoning the introduction or elaboration of the hospital services in primitive areas stands condemned."

The greatest benefit for the greatest number will be found along the lines of disease prevention and in the early stages of development, effort and expenditure should be concentrated in this direction.

Professor Davey went on to say that history shows that even in the absence of specific medical measures, endemic disease tends to recede as social and economic conditions advance and the doctor should realize, in this connexion, the importance of the work of the agriculturist and the educationalist.

Professor Davey's Address was followed by a paper by Dr. D. W. Horn, M.O.H. Colonial Medical Service, Nigeria, on "The Epidemic of Cerebrospinal Fever in the Northern Province of Nigeria, 1949-50."

Dr. Horn stated that the greatest scourge of *all* epidemic disease in Nigeria was cerebrospinal fever due to *Neisseria meningitidis*, and gave a summary of previous epidemics. This certainly was a surprise to many of us, accustomed to think in terms of smallpox or plague. In the epidemic 1949-50 the enormous total of 92,964 cases with 14,273 deaths (case mortality rate 15.4 per cent) was reported. Some idea of the size of the problem may be gauged when it is realized that the epidemic was spread over an area four times the size of England and Wales—with a sparse population and poor communications.

Control measures consisted in making available to all who needed it a rapid and effective treatment. This was done by setting up temporary treatment centres and at the height of the epidemic treatment was available in eleven hospitals, 80 native administration dispensaries, 350 temporary treatment centres and 41 mission dispensaries. These centres were made possible by mobilizing the Medical Field Units of the Sleeping Sickness Service and sending them to the worst affected areas.

Each centre was put in charge of a trained African attendant who was made responsible for giving all treatments and keeping records. The centres were visited regularly by a Medical Officer of Health or a Health Superintendent.

The standard treatment consisted of intramuscular injections of a watery suspension of sulphathiazole in a strength of 1.5 grammes in 10 c.c. Dosage for an adult case was:

First day: 2 injections of 10 c.c. suspension with a soluble sulphonamide preparation as an adjuvant.

Second day: 10 c.c. of suspension morning and evening.

Third and subsequent days: 10 c.c. suspension once daily.

Five days' treatment usually sufficed to cure.

The results obtained were comparable with those obtained in the United Kingdom using sulphonamides.

The administration of this vast organization was in the hands of the Senior Medical Officer in charge of the Medical Field Units, who kept all epidemic supplies of drugs and equipment with mobile teams of reserve staff ready to proceed by lorry to wherever their services were required.

Little is known about the epidemiology of cerebrospinal fever under tropical conditions. Notification of cases and deaths increased rapidly week by week from the end of December 1949 and reached a climax in the first week of April 1950.

It is essentially a "dry season" epidemic. "In January and February, it is usually very cold at night compared to the day; the natives sleep huddled together for warmth in small ill-ventilated huts." In one province an investigation showed the carrier rate to be 20 per cent for December to March—during the rainy season it varied from 0–2·5 per cent.

In suggestions for the future, Dr. Horn discussed mass prophylaxis but considered prophylactic administration of sulphonamides to be unsound in view of the danger of producing drug-resisting strains of organisms; and in any case it would be administratively quite impossible in Nigeria. It was hoped to undertake some experiments next year using a Todd insecticidal fog applicator (TIFA) to "fog" a community with a mild antiseptic in the hope of reducing the carrier rate.

Dr. H. N. Davies, Tuberculosis Specialist, Tanganyika, gave an account of the work of the tuberculosis unit on Kilimanjaro and its effect on general tuberculosis policy in Tanganyika Territory.

Based on a hospital sanatorium started in 1927 at Kibongoto on the South-West corner of the mountain, the unit has gradually worked up until it has feelers in every habitable area of the district. In an endeavour to examine and treat contacts, a chain of dispensaries has been formed round the mountain. The "dispensaries" are really points of contact without patients. Although it is now drawing Asians and Africans from all over East Africa (mainly because there is nowhere else for them to go), its main concern is with local tribes.

Dr. Davies pointed out the efficacy of the "local" scheme compared with the abortive attempt at becoming a territorial or inter-territorial scheme when tracing of contacts is of course impracticable.

The original 12 in-patients in 1927 has increased year by year until the

daily average in 1950 is about 250 (of whom about half are from the local tribe).

Although the Hospital was started in 1927 it is only now that the whole place is being properly rebuilt. "During all these years patients have had to live in anything that we could beg, borrow or steal; mud and wattle bandas with thatched or corrugated-iron roofs, corrugated-iron frame buildings, mud brick buildings with thatched roofs, lean-to's of thatching or corrugated-iron—any old thing we could lay our hands on. Home from Home: bottles under the bed; chickens all over the place; bananas and firewood suspended from the eaves—until we got a matron."

The scheme shows what useful work can be done by enthusiasts even when financial help is very limited and elaborate hospital buildings lacking.

Many other papers were read leading to useful discussions.

Visits to various factories and places of interest were arranged for the afternoons.

The social side was not neglected. Civic Receptions were held by the invitation of the Mayor and Corporation of Southport.

A well-attended Congress dinner was held and there was also a successful dinner of the Services Group of the Society of Medical Officers of Health, attended by 24 members.

The 3 official War Office Medical Delegates were Major General T. Young, D. of A.H., Colonel H. E. Knott, Commandant of the Army School of Health, and Lieut.-Colonel C. L. Day, Reader in Army Health, R.A.M. College.

DERMATOLOGY IN SINGAPORE

BY

Major KEMBLE GREENWOOD, M.B.Lond., M.R.C.P.Ed.

Royal Army Medical Corps

Dermatologist, Military Hospital, Singapore

Lecturer in Dermatology, University of Malaya

In this city of many races the practice of Dermatology presents many differences, often fascinating, from practice in the United Kingdom. Here "Race," in addition to Personality, has to be considered in the evaluation of all conditions for two reasons: firstly in that "Race-personality" often shows fundamental differences; secondly in that certain races seem predisposed to certain conditions.

Singapore is predominantly a Chinese city, and the proportion of Chinese to Non-Chinese presenting at the clinics is roughly two to one. Other races attending include Malays, Indians, Ceylonese, Tamils, Sikhs, and Europeans. The following table shows the disease proportions among 500 cases seen by me personally at the General Hospital Clinic. For convenience they are divided into Chinese (C) and Non-Chinese (NC).

<i>Eczema-Dermatitis</i>	<i>Scabies</i>	<i>Pyogenic infections</i>	<i>Leprosy</i>	<i>Tinea</i>
C 142	C 39	C 37	C 26	C 12
NC 50	NC 22	NC 21	NC 5	NC 10
<i>Prurigo</i>	<i>Acne</i>	<i>Psoriasis</i>	<i>Lupus erythematosus</i>	<i>Syphilis</i>
C 8	C 11	C 2	C 3	C 5
NC 0	NC 8	NC 2	NC 2	NC 0
<i>Yaws</i>	<i>Pityriasis rosea</i>	<i>Lupus vulgaris</i>	<i>Miscellaneous</i>	
C 0	C 0	C 3	C 49	
NC 7	NC 6	NC 1	NC 29	

It would be well to say something of the largest, the Eczema-Dermatitis, group. These classifications are of necessity somewhat arbitrary, and this first group includes all the "Eczematous" processes. Into it comes the Pompholyx type of eczematous reaction, but since most of these present with superadded staphylococcal contamination, some have been grouped under the "Pyogenic" heading, depending on which aspect seemed to me more important at the time.

Nevertheless there is no doubt as to the significance of the fact that of the 142 Chinese listed under the Eczema-Dermatitis group, 105 were due to some form of previous medication, usually self-supplied, while of the 50 Non-Chinese 25 were similarly caused.

The contrast is in fact more striking, because the variety of Chinese medication is more wide and imaginative, and includes any number of locally made fierce preparations, and also such remedies as lime, garlic, onions, ginger, herbs, spices, and oils. Also the Chinese are perhaps naturally more stoic, and therefore only arrive at a European Hospital when gross sepsis or almost complete exfoliation makes it impossible for them to remain at home.

On the other hand the 25 Non-Chinese were more homely and conservative in their tastes, and had used standard proprietary preparations, antibiotics, fungicides, and customary antiseptics. Among these patients were included several Europeans, and most of them reported early. In this respect the Malay is an excellent patient who usually avoids self-medication.

It is interesting to notice an extraordinary paucity of "idiopathic eczematous states" (other than those of the feet and hands), seborrhœic eruptions, and even atopic dermatoses. I mentioned this curious feature at a meeting of the local Medical Association, and it was seriously suggested by a member that possibly the reason was that in Singapore "cleanliness" was much more the rule. He referred (to the considerable amusement of members) to a British Cabinet Minister's pronouncement *that one or two baths per week should suffice*. I do not think that increased cleanliness is in fact responsible, but at the same time one should be under no illusions. Two or three baths a day on this island, where water is so plentiful, is almost the rule, and it is salutary to observe young girls and old women emerging from what seems to be practically hovels in immaculate, freshly washed, and beautifully ironed clothing.

My own view of the scarcity of such conditions is that this is essentially a healthy climate. There is a high humidity, a pleasant and even temperature which makes restricting and irritating clothing unnecessary, and abundant sunshine. Ultra-violet radiation has been shown by Cornbleet (1933) and others to increase the sterilizing powers of the skin, and generally speaking the European who contracts disease in Singapore is he who is scared of the sun, and who translates his fears into what he considers preventative action, antiseptics, fungicides, prickly-heat lotions, and so on, all of which tend to undermine the skin's natural resistance. The white skin does not tan easily in the sun, possibly because ultra-violet radiation is absorbed to some extent by perspiration and humidity (Crew and Whittle, 1938). Nevertheless a good tan is also good protection against many of the minor skin irritations which may beset the new arrival. I believe that ultra-violet light militates also against the production of seborrhœic and eczematous conditions.

In the series there were 7 cases of yaws. This most interesting condition is common among Malays, and apart from the hospital clinic I have seen many such cases, all in Malay or allied races. I have never seen yaws in a

Chinese, although cases do occur occasionally, particularly where the Chinese are living on local isolated islands on which there are Malay villages. The controversy on the ætiology of yaws, and its relationship to syphilis still persists. Turner (1942) produced evidence showing that the difference in the two diseases is due to stable biological differences between the causative organisms. *Treponema pertenue* is indistinguishable from *Treponema pallida* by any laboratory method we know, and also incidentally from *Treponema cuniculi* which is responsible for the condition "Venereal Spirochætosis of Rabbits." Turner *et al.* (1947) demonstrated that immunity develops in rabbits to infection with any two of these Treponemata following experimental infection with the third. This immunity is incomplete. They consider that genetic stability of the organism is more probable than that mutation occurs. There is no doubt that a primary syphilitic sore can develop in a patient previously infected with yaws.

The ordinary clinical features of yaws have been well described by many. The case we can scarcely mistake here is the Malay child or young adult, with one or multiple granulomata, extragenital in 99 per cent of cases, and frequently involving exposed surfaces or in young women the breast. There are other features which are less well recognized and which deserve mention. Any palmar or plantar condition, keratosis, pigmentary abnormality, or erosion, in the Malay races, should be viewed with suspicion. The first case I recognized in Malaya was a Dyak who presented himself with a scaly circular patch on the medial border of one foot. When I tried to remove scales for identification of fungus it became obvious that the condition was more a keratosis than a scale, and dark ground examination for spirochætetes was positive. Moth-eaten erosions may occur, sometimes in concentric rings, on the sole, sometimes scattered over the palms or one finger. Erythematous and keratotic lesions are quite common, but most frequently one sees one or two granulomata, perhaps between the toes, perhaps on the sole, looking like heaped-up septic granulation tissue, while the sole itself is mildly disfigured by a patchy keratosis, and patchy pigmentation. Gummatous-type ulceration and periostitis are common in the later stages of the disease. It is my opinion that this condition cannot easily be divided into stages. One can say that a certain type of pathology is more commonly an early manifestation, while another type is more commonly a late. Yaws, happily, is readily amenable to treatment. Keratoses and ulceration perhaps resolve more rapidly with bismuth and iodides than with penicillin. Relapse may be expected unless a course of treatment, as for syphilis, is given. Blood serology is always positive in this disease.

There were 31 cases of leprosy in the series, 26 of which were Chinese. The 5 Non-Chinese were representatives of 5 different races; a European, a Sikh, a Javanese, a Tamil, and a Malay. There is little new that I can add to the already extensive literature on leprosy, but it is my impression here in Malaya that systems of classification are valueless. The tuberculoid case of today may produce a lepromatous nodule tomorrow. Mixed cases are very

common, and this tends to diminish greatly the value of the lepromin reaction. I am not responsible for the treatment of leprosy here except in a few instances, but good results are being obtained by injections of G.O.2. (1 c.c.) of basic 44 diamino-diphenyl sulphone in coconut oil intramuscularly. This is given once weekly; and after about a month twice weekly, which dosage is continued indefinitely. Alternatively sulphetrone can be given orally, in which case a system of treatment would begin with 0.5 gramme (one tablet) daily and gradually work up, depending on the degree of reaction, to 2 grammes or even more per day. Toxic effects do occur; nausea, giddiness, fever, anæmia, leucopenia, skin rashes, even photo-sensitization.

The histology of tuberculoid leprosy is extraordinarily similar to that of lupus vulgaris. Lupus is said by some not to occur in Malaya. I have seen 4 definite cases among the local-born, but one should be wary of accepting such a diagnosis. Many cases so labelled subsequently turn out to be tuberculoid lepers.

The incidence of tinea is not high in the series, but in the European, particularly in the Services, it is very high. Body tinea develops in the European soldier with extraordinary regularity between two and three months after his arrival in Malaya. In a random series of 30 consecutive cases admitted to my wards at the Military Hospital 15 started their body involvement three months after arrival; 12 two months after arrival; 2 at seven and eight months respectively; and 1 case in transit between Colombo and Singapore. It has hitherto been assumed that the source of tinea in the European was probably a reservoir in the indigenous population. A research team working in Malaya showed a rough incidence of body tinea of one in three in 1,700 British Other Ranks examined, with a 54 per cent incidence of *Trichophyton metagrophytes*, a fungus uncommon in the local population (1947-8). There was a 33 per cent incidence of *Epidermophyton floccosum* infection, while other fungi, making up the remainder, were unimportant. I have long been convinced that *Trichophyton metagrophytes* is brought out from the temperate zones as *Trichophyton interdigitale* between the toes of the European (Greenwood, 1949), and that the climatic change causes a variation of the latter into the former, which then gives rise to a body infection. The reverse variation has been shown to occur under laboratory conditions (Emmons and Hollaender, 1945). Interdigital foot tinea is common enough in temperate zones and *T. interdigitale* is the most common fungus type. Figures produced in large scale assessments depend on the skill and perseverance of the observer. Walker (1950) examined 1,010 men in U.K. and found that 857 showed no clinical abnormality, yet managed to isolate fungus from 30 showing some signs of disorder and 9 showing no signs. Legge *et al.* (1933) found clinical evidence of foot tinea among 3,100 California University students in 78 per cent of cases and also showed that cultural success could be increased from 32 per cent to 66 per cent simply by trying harder. Dowding and Orr (1937) found *T. interdigitale* in 50 per cent of cases of tinea pedis in U.K.

It is difficult to imagine an alternative explanation for the remarkable regularity of onset of body tinea in the soldier after arrival in Malaya. The same applies to those who come from the Middle East. It is the Malayan climate to which I refer.

I hope to publish details of comparative therapy in these conditions in a subsequent paper. It is my experience of a large number of cases that recent discoveries in anti-fungus therapy are no advance over remedies of long standing such as chrysarobin and Castellani's paint. Undeclenates are of value in eczematized cases, but are not potent enough to control general infection as a rule. Foot eczematization is much more of a problem here than tinea, and keratolytics should almost never be applied to the toes for that reason.

It is vitally important to understand the mechanisms behind foot and hand eczematous processes. In these sites there is a tendency towards vesicle formation. A fungus infection of the toes will result in local vesicles; so also will a reaction to treatment with fungicides. The vesicular eruptions of the sole may be secondary to interdigital tinea, but is very seldom directly due to fungus infection. This "Dermatophytide" may also affect the hands. Vesicular eruptions of the sole are often treated with fungicides, and the result sometimes is a serious spread of the eruption, complete desquamation of hands and feet, and invaliding from the tropics. I have had numerous cases of moderately severe vesicular eruptions of the feet; some "ides"; some due to trauma, with autogenous sensitization; some due to over-treatment; some due to wool-contact and hyperhidrosis. I have also had the very occasional case with vesicles on the sole directly due to fungus, with positive sore scrapings, which clears with fungicides. It is safer to assume (as I now teach all newly arrived Army doctors) that vesicles on the sole are almost never directly due to fungus, but that the toes should be treated with a non-keratolytic, bland, fungicidal, spirit paint, and powder.

The scope of this article is too limited to discuss many of the conditions which are seen here in Singapore. Some are too commonplace: some too rare. There are some points of interest. Ankylostome "creeping eruptions" are not uncommon, and seem to run a self-limiting course of about two to three months. Local freezing is effective in treatment. The Chinese tend to develop hyperkeratotic areas at the sites of old trauma, particularly on the lower legs. I have not observed this feature in any other race. Pityriasis versicolor is very common. The colour of the lesions varies according to the "natural colour" of the individual. The Malay, a beautiful chocolate brown, is "naturally" light coloured, and in him *P. versicolor* is always apparently depigmented. The Siamese, in fact, refer to the condition as "Tinea alba." But in the Tamil, who is black-skinned, the patches are equally black. In the European they may be light, dark, or erythematous. Pityriasis rosea tends to occur in Indians, Malays, and Eurasians. It is often difficult to make a diagnosis in dark-skinned people, but the disease runs a typical course. It is often more extensive than one usually sees at home.

Follicular keratoses, of the type mentioned by Sequeira *et al.* (1947) are quite common. An ichthyotic appearance of the legs, with follicular spines over the thighs and lateral aspects of arms is probably indicative of vitamin-A deficiency, as described by Fasal (1945). I have seen this in Chinese children not infrequently, and sometimes the forehead also is affected. In Tamil adults a similar condition is seen, and often complicated by a pustular folliculitis. This also occurs in Gurkha soldiers. The former group responds to vitamin A, but the latter does not seem to react even to very large doses. One Tamil soldier had an extensive chronic folliculitis of arms and legs, and also patches in the scalp causing alopecia; a picture in so far as the scalp was concerned not unlike folliculitis decalvans. I have also seen several cases of lichen spinulosus in Chinese children, and these of course are unaffected by vitamin A.

Patients with psoriasis do very well in Malaya. This is contrary to the opinion of others (Fergusson, 1948). Europeans particularly clear up and remain clear. Some of the few Europeans I have seen with psoriasis have developed it where previously they have had tinea. This example of the Koebner Isomorph reaction has caused some confusion.

In conclusion I should like to express my gratitude to the Singapore Medical Services for the opportunities I have had of working in the Dermatological Department. Malaya (in spite of bandits) is a fascinating and colourful land. There is unlimited scope for the practice of Dermatology. I should like also to thank Dr. W. J. Vickers, C.M.G., D.M.S. Singapore, Brig. J. T. Collins, O.B.E., D.M.S. FARELF, and Col. J. H. Anderson, O.C., B.M.H., Singapore, for permission to publish.

REFERENCES

- CORNBLEET, T. (1933) *Arch. Derm. Syph. N.Y.*, **28**, 526.
 CREW, W. H., and WHITTLE, C. H. (1938) *J. Physiol.*, **93**, 335.
 DOWDING, and ORR (1937) *B.J. Derm. Syph.*, **44**, 298.
 EMMONS, C. W., and HOLLAENDER, A. (1945) *Arch. Derm. Syph. N.Y.*, **52**, 257.
 FASAL, P. (1945) *Arch. Derm. Syph. N.Y.*, **51**, 163.
 FERGUSON, A. G. (1948) *Modern Trends in Dermatology*.
 GREENWOOD, K. (1949) *J.R.A.M.C.*, p. 284-9, June.
 LEGGE, R. T., BONAR, L., and TEMPLETON, H. J. (1933) *Arch. Derm. Syph. N.Y.*, **27**, 12.
 SEQUEIRA, J. H., INGRAM, J. T., and BRAIN, R. T. (1947) *Diseases of the Skin*.
 TURNER, T. B. (1942) *Trans. Assoc. Amer. Physic.*, **57**, 265.
 —, McLEOD, C., and UPDYKE, E. L. (1947) *Amer. J. Hyg.*, **46**, 287.
 WALKER, J. (1950) *B.J. Derm. Syph.*, **62**, 6.
 W.O. Report on Skin Disease FARELF 1947-8.

At Random

THE COMMON TASK

WHAT can we regard as the Common Task of the Medical Services of the Army, or, for that matter, of the Medical Services of all our armed forces?

The answer is given quite simply in F.S.R. and in the training manuals, and from these would seem quite easy to follow and carry out, at any rate, in broad principles and even, possibly, in detail.

But the whole idea and application were for many years somewhat contrary to the general trend of medical teaching, which concentrated on the disease and its cure, and therefore to the preconceived ideas of the general public and, in particular, of the newly recruited medical officer on what is the Common Task of the Medical Services.

The whole trend of medical teaching and, in fact, the natural inclination of the young enthusiastic medical man used to be concentrated on the sick or injured individual, the cure of the diseased condition or the healing of the injury; and, incidentally, the monetary rewards of medicine were mainly given for the healing and mending of the sick and injured.

Until recently this was quite definitely the attitude of general civil medical practice to the public and of the general public to the common task of the medical profession. It was much more spectacular and remunerative from the professional point of view, and an apparently much more natural demand from the general public point of view to cure the sick or badly injured individual than to claim that several individuals had been kept in good health by preventive measures carried out by or even merely advised by the doctor.

It is interesting to note how this attitude of both the Public and the Profession are being affected by the present provisions and restrictive practices of the National Health Service. It was in recent years only that this attitude in civil medical practice and the Public's ideas on the functions of the Medical Profession had begun to change, the change being exemplified by the later developments of the original Panel system, the School medical services, natal and pre-natal medical care, dental care of children and young adults and above all the extension and control exercised by the Public Health Services in the prevention of infectious diseases, of food-borne infections and of epidemic importations. But the present regulations and, to many members of the Profession, the restrictive practices of the N.H.S. as they now stand are definitely carrying this change of attitude further: the old relationship between the doctor and the patient is

being lost, it is a very moot point whether this nationalized method of medicine is really offering a better way of life or leading to the development of real preventive medicine.

It was the Army Medical Service which was the pioneer of *preventive* medicine, which found its main common task to be the preservation of health and the production of a fit force kept fit for fighting; the care of the sick and wounded being a subsidiary task with its main object that of the return of those sick and wounded back to duty as soon as possible. This latter may seem a somewhat callous view to the ordinary layman or to the supersympathetic non-combatant, but an army is meant to fight, not to go to hospital. The test of the efficiency of its Medical Services should be a high percentage of fitness and low sick rates, small sick parades and empty hospitals.

A glance through the past pages and volumes of this Journal over the past few years or even since its foundation will show the interested reader the variety of subjects which go to cover this common task, the Preservation of Health. The Specialist in any given subject naturally tends to concentrate his written output on his specialism and to elaborate the curative as well as, or perhaps even more than the preventive aspect of his subject; but, on the whole, the trend of articles supplied to the Journal, and therefore, presumably, the trend of thought of its contributors is towards that preventive aspects of medicine, the preservation of fitness, the promotion of positive health.

We think, too, that the general trend of opinion amongst the laity of the services as to the functions of its medical branch have distinctly changed over the past thirty years and that the combatant officer, particularly the senior combatant officer, now realizes that preventive medicine is the main task of the medical side and that that task consequently embraces opinion, advice or action on practically every phase of military training and performance; on housing, feeding, clothing; on selecting, teaching and co-ordinating the available material. Definitely gone, we hope, are the days when the following was heard: Orderly Officer reporting to Unit Commander: "The Senior Medical Officer has arrived to see the camp and lines." Who replies: "Oh has he, well the latrines are over there."

This trend of opinion appears also to have spread to certain sections of the civilian laity in its conception of the duties and purpose of the medical profession. The very efficient work of the Medical Officers of Health over many, many years has undoubtedly had its influence both in the practical prevention of disease and in the education of certain sections of the public. In this connexion the following quotation from a recent leading article in the *British Medical Journal* on this very subject is of interest.¹ This comments on the importance of the preventive side of medicine and its achievements but also on the difficulty of impressing on the lay public that prevention is the primary common task of its medical profession.

¹ Extract from *B.M.J.*, June 9, 1951. p. 1309.

PREVENTIVE MEDICINE IN MEDICAL PRACTICE

The saying about the Greeks and their gifts might be expressed in modern terms, "I begin to suspect you when you pat me on the back." In the medical profession the most back-patted groups are general practitioners and medical officers of health. Family doctors are, as we all know, "the first line of defence against disease" and "the backbone of the profession"; and the health officers have a special place in the hearts of ministers of health. The famous White Paper of 1944 said as much, and Mr. Bevan went even further: "I am confident," said he, "that the medical officers of health are not at the end of an epoch but at the beginning; that they are not at the beginning of an epoch of declining usefulness but, on the contrary, I believe that their value is going to expand, and their importance is going to grow, and that they are going to achieve new distinction." We need not doubt the sincerity of those who make remarks of that kind; it is their understanding that is at fault. Anyone can talk about prevention, and the word "health" is too often profaned; but the art and practice of health are difficult. Moreover, it is always easy to make light of preventive medicine as carried out by the general practitioner and the medical officer of health. Their work can be cast aside as unscientific, if only because its results are hard to assess in a limited sphere or over a short period of time. The event that does not happen is not published. The effect of prevention can be, as it were, distributed like a bonus among shareholders. But who is so bold as to say, "I prevented"?

The practice of preventive medicine is steadily having its educative effect, we hope; but it will be a long, long time before the general lay public, the townsman and more particularly the villager of this country comes to regard the common task of the medical profession as being that of prevention rather than cure. It will be a long time before the British housewife will ask for or possibly even receive with equanimity a visit from her N.H.S. professional attendant for the purpose of inspecting her kitchen, larder and lavatory in order to preserve the health of her family. She will much more naturally call him in to deal with the established onset of summer diarrhoea or even a possible typhoid infection and will probably be horrified and indignant on being told that she could have prevented this by proper attention to her kitchen, larder and lavatory.

In the armed forces the preventive side of medicine is, we think, firmly established and now accepted as a normal procedure and for the Medical Services their common task.

Clinical and Other Notes

REGIMENTAL MEDICAL SERVICE ONE HUNDRED YEARS AGO

(An Authentic Episode)

BY

“SENEX”

It has recently been suggested that one reason for the existing shortage of applicants for regular commissions in our Corps may be lack of the “spirit of adventure” in the modern generation.

That our predecessors and forebears were sometimes plunged unwittingly into adventures rare in our present times is perhaps revealed by the following extracts from a letter written by a Regimental Medical Officer in the 27th (Inniskilling) Foot to his mother nearly one hundred years ago.

The Regiment was at the time in transit on a peacetime transfer to India, an operation, as may be seen, somewhat different to modern “trooping.”

The ship in question, H.M. Troopship “Charlotte” of 585 tons (Captain Affleck), had left Queenstown on June 28, 1854, carrying one Company (Captain Warren) and families of the Regiment.

The writer of the letter was Assistant Surgeon in charge of the party; both he and the Surgeon Major (W. A. Thompson) later attained the rank of Deputy Surgeon-General.

62 N.C.O.s and men, 11 women and 26 children were lost in the disaster; the survivors were later sent on to India in another ship and later served in The Mutiny campaigns.

As a strange coincidence the writer was later involved in another maritime disaster when he was returning from India in medical charge of invalids in the troopship “Eastern Monarch,” which was blown up as the result of fire at Spithead on June 3, 1859.

On both occasions he was “Mentioned in General Orders” for good services.

“Port Elizabeth,
Algoa Bay,
South Africa.
Monday, 25th September, 1854.

“My dearest Mother,

I have no doubt that you will be surprised at receiving a letter from this place. you need not feel the least uneasiness or alarm about me on this account, I daresay you knew that it was not our intention to touch any place.

We had a most beautiful and prosperous voyage till we commenced to near the Cape, where we proposed touching for the same purpose that brought us here, namely to procure water. On the 8th Sept we got so close to the entrance of Table Bay that we were in full view of Cape Town, the surrounding country and ships in the Harbour, but wind having sprung up in the opposing direction we were obliged to put to sea again. We made two successive attempts afterwards to get in, but both were unsuccessful and so we bore away and came on in this direction.

We had a good deal of dirty weather between the Cape and this, a distance of about 500 miles, but arrived here on the morning of the 19th. There are a good many ships lying at anchor here, but none so large as the Charlotte. We got on very well the first day . . . it was Capt. Stapylton's wish that I should only be away from the ship a few hours at a time and never sleep on shore; consequently I had intended going ashore next day. . . .

In the morning we found the surf on the beach running to such an extent that unless for some very powerful object no one would think of leaving the shore to bring us out of the ship, so we had to content ourselves on board in the course of the day. Signals were made from the Harbour Master's office to moor ship more securely and prepare for a gale; this was accordingly done, a second anchor was cast and some of the highest yards taken down. The wind at this time was blowing from the S.E., directly on shore; it was merely a breeze, not at all resembling the violence of a gale.

The ship was very high out of the water, having such a light cargo; the heaviest part was the stem which was some four feet lower in the water than the bow. Consequently the strain on the chain cables was very great; their strength and length were objects of some admiration to the Captain that he brought Warren and me to the fore-castle to watch the tugging of each chain as the ship rose on the rollers which were running in heavily towards shore.

While we were there and actually had our eyes on the cables one of them broke; this was an immediate cause of uneasiness for we knew that should the other cable break we should immediately commence to run on shore. Whilst signalling to the shore for another anchor or whatever other assistance they could send the second chain snapped likewise.

The sun having gone below the horizon a few minutes before, the Captain immediately made sail for the purpose of beating out of the harbour, in which attempt we were commencing to congratulate one another on success when the wind, which all along had not been favourable but better than none, failed us entirely and we perceived ourselves coming steadily in towards shore. It was now quite dark but the people on shore had brilliant fires all along the beach; the Churches and all the other houses showed lights in their windows and the Church bells were rung.

To anyone in idle consciousness of approaching danger the scene was (indescribably) awful; few except the officers of the ship, Warren and myself were aware of the exact circumstances; as it was we were all so busy assisting and encouraging the men to assist in working the ship that we had not much time for fear.

At about 8 p.m. the ship struck. Being now fixed and unable to rise with each wave we were frequently deluged with heavy masses of water. . . . The scene now became awful in the extreme; the screams of the poor creatures, many of them almost naked, each wave deluging us with water and the ship rolling violently as she settled on the sharp and cruel rocks.

I stood for some time at the door of the cabin looking at the devastation on deck; whilst here a child was passed into my arms; I could not with conscience pass it on to any other person so procured a shawl and wrapped it up and did my best to keep the warmth in it. One of the ladders leading up to the poop had been washed away, fortunately one remained so I determined to make my way up there and succeeded in crossing the deck in the interval of the waves and reached the poop in safety, still with

the child in my arms and, along with a crowd of others, held on to the mizzen mast, but being afraid of its breaking I got up to the weather side of the ship. Having only one arm to hold on by I was becoming exceedingly fatigued and gave the child to one of the corporals to hold for a few minutes, but the honest fellow would not return it, I believe it died in his arms.

It would be impossible for me to give an adequate description of that awful night. The best efforts of those on shore were made to tender us assistance; ropes were fired over the rigging from a mortar but owing to the darkness we could not secure them, one indeed had been secured by the 1st Mate but an unlucky roll of the ship snatched it from his hand. A lifeboat made several attempts to approach us but we poor creatures were unable to throw them a line; with the last attempt the boat was swamped; with the greatest difficulty the brave crew succeeded in getting her to shore in an utterly disabled condition; they only succeeded in rescuing one from the wreck.

The waves by this time, although there was not a breath of wind, were washing over us with awful violence, the cold deluging wave would chill us to the bone. On giving up the child I tried to assist one of our serjeants whom I had had under treatment for inflammation of the heart; I supported him for a long while, three or four times he was almost washed away.

We had been about 5 hours in this condition when, wishing to speak to Warren and Capt. Affleck, I changed my position and tried to get a good hold of the front rail of the poop to which there were many clinging; I only succeeded in getting a finger and thumb hold and as the ship was rapidly breaking up I expected momentarily to be washed away. At times the deck was nearly vertical to the water, the masts lying along it. The cold and fatigue had nearly deprived us of all energy and as we were not much more than 100 yards from the shore I took off my boots determined should I be swept away to do my best by swimming, but at the same time with my mind fully made up to stick by the wreck till the very last.

At length one huge wave took me off my feet and I slipped along the deck and soon found myself in the water. My first fear was of being seized on by some poor creature whom I could not assist and who might drown us both, this fortunately I escaped; my second was the fear of being entangled in some of the loose rigging, this was more nearly realized as the vessel lay over so much that I was covered in the water by the sails still set on one of the masts; happily she righted sufficiently for me to make my escape; I struck out vigorously but between the weight of my clothes and my previous fatigue I soon became almost incapable of effort, but with thankfulness to God I felt the greatest support and assistance from the buoyancy of my swimming belt which kept my head well above water and each succeeding roller brought me nearer to land. I laid hold of two or three light articles in the water, pieces of wood, small barrels etc., but none were of sufficient weight to give me any assistance; sometimes my feet were before me and sometimes behind me and sometimes I was actually spun round in the water; I only touched once and that was gently with my feet: as I was doing my best to scramble up a now friendly roller carried me over in perfect safety and left me in a calm and shallow creek whence I was easily assisted by those on shore. I should mention that as I approached land I shouted lustily to attract attention so that I had kind hands waiting to receive me.

I was carried up to a house, wrapped in warm blankets with hot bricks to my feet. a mustard poultice outside my stomach, gin and water and hot coffee inside; I was able to go about in an hour to render assistance to the other sufferers.

The loss of life I am grieved to say has been immense, not one of 26 children was saved and only 5 out of 16 women and 62 men were lost. The kindness of the inhabitants of Port Elizabeth can never meet with too much praise.

I have no idea what we are now likely to do; I daresay we shall be here for some time till a ship can be chartered to bring us on to Calcutta. There will of course be a tedious

investigation; blame cannot be attributed to anyone; once the accident happened the Captain was cool and collected and gave his orders distinctly and calmly, the soldiers behaved as well as men could possibly be expected to do, but the crew got drunk the consequence of which has been that only 3 or 4 are saved out of 22; the ship ranked high in Lloyd's books and was frequently inspected by good authorities before having been taken up for troops.

My things have turned up wonderfully; I have saved a large quantity of my linen and cloth clothes but not a stitch of my uniform, my books and furniture are all gone, the Bible you gave me has been saved as well as another I got from . . . , the gun-case and contents also came on shore but of course thoroughly wet, also the case of surgical instruments supplied by the Company. I should mention that shortly after I was washed away the ship broke up and the crowded poop separated from the other part; this through God's great mercy was the means of saving many lives as it floated far in towards shore so that those on board were all able to step out on the rocks.

I send a paper with an account of the wreck and I shall have another opportunity in about ten days or a fortnight of writing by a homeward bound vessel of which please God I shall avail myself. This letter will go by the mail which unfortunately is very irregular now; my next will go by the 'Shepherdess,' a fast sailing Brig about to leave this in a few days and perhaps it may reach you before this. . . .

I have not much more time to write. May God mercifully grant that the awful warning and merciful escape which I have had be to me the means of confirming me in my determination to live a 'Godly righteous and sober life' for the future and not be a means of condemnation on account of my neglect of the opportunities so mercifully extended to me. May God bless and protect all dear friends at Home. Remember me most kindly to all who think of me and believe me my dear Mother with fondest prayers to Almighty God for the welfare of you and all at home.

Yours sincerely and gratefully attached son,
_____."

PHOTOGRAPHY AND MEDICINE

A NOTE BY

THE ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN

EVER since it became possible to obtain permanent records by the action of light, photography has had a place in science. The medical profession soon found that Roentgen's discovery could be developed into a most useful diagnostic tool in almost every branch of medicine. Roentgen or X-rays are very much shorter than the waves of visible light. They will penetrate the soft tissues of the body and impart their energy to a photographic plate or film, causing a silver deposit to be formed, when the film is developed. Some matter such as bone, however, will not permit this penetration quite so readily. These areas will appear correspondingly lighter on the negative, which can be examined for possible abnormalities. Much has been learned of the internal anatomy and function of the body by this technique.

Today many thousands of such films are exposed daily in our hospitals

to assist in obtaining the necessary evidence to establish the origin and cause of a malady. Mass miniature radiography is widely used to detect the early stages of chest diseases in people who might otherwise seem to be perfectly fit and healthy. In this process the X-ray film is replaced by a fluorescent screen, which becomes luminous in those parts where X-rays have penetrated the body. This image is then recorded by a camera on 35 mm. film. Each individual picture is studied by projecting the film on to a screen.

Somewhat longer than X-rays are the waves of ultra-violet light. These, too, have been found to be of great help in medicine and biology. Owing to their shortness these waves are capable of portraying exceedingly small formations in very fine detail, and are therefore employed widely in research work, where photomicrography is used to investigate the composition and behaviour of minute structures.

However, where such very fine detail is not required, the longer waves of visible light are commonly used in photomicrography.

Photomicrography is not confined to still photography; motion pictures can also be recorded with the help of the microscope. These films are proving most useful in research and teaching. An action, such as the growth of cell structures, can now be viewed on the screen; whereas hours of painstaking observation through the microscope would be required to note such changes. Single pictures, automatically exposed through the microscope at given intervals, are finally projected at normal speed giving considerable visual acceleration, so that the natural action of one hour or more may be observed within the short space of a few seconds or minutes.

In medicine, photography has in recent years come to be used to an ever-increasing extent. Although images obtained with a camera cannot hope to rival radiography as a means towards the diagnosis of diseases, ways are being found to record, for instance, movements which would otherwise be too fast for study with the unaided eye. The exposure times, with the help of electronic flash discharge tubes, can be reduced to approximately 1/5000th part of a second, short enough to arrest any motion to be encountered in the medical field. High-speed cinematography can be employed to analyse movements, so-called "slow-motion."

Black and white photography is often used to establish the effect of treatment, whether medical or surgical, by comparing photographs taken before, during and after treatment. This applies perhaps more especially to the treatment of skin conditions, the repair of injuries by plastic surgery, and to investigations into the effectiveness and behaviour of new drugs.

Colour photography is being used more and more as colour processes become easier to handle and more reliable. Colour may be a significant part of the general picture which characterizes a given disease. Here a record in colour can be of particular benefit to the student, who can memorize the appearance of the disease more readily after seeing striking and realistic photographs, when unable to see the actual patient.

Stereoscopy is used to the same purpose. So much of the student's work is three dimensional that he can be greatly assisted in the proper appreciation of size and shape by a three dimensional visual aid. The configuration and nature of cavities can be studied particularly well by this method. Stereoscopy is also used in radiography for the localization of foreign bodies.

Special apparatus has been constructed in recent years to photograph the various cavities of the body, so that it is now possible to photograph the inside of the stomach or the main branches of the airways in the lung.

The diagnostic use of photography is perhaps demonstrated best in the utilization of infra-red rays to show the venous pattern just below the skin. Infra-red waves are longer than those of visible light and are able to penetrate the skin to some extent. When they reach the blood in the veins, which contain very little red, the infra-red rays tend to be absorbed and do not affect the specially sensitized emulsion. Thus, in the final photographic print, a dark pattern will be seen to correspond with the position of the veins below the skin of the patient. A change in this pattern can be characteristic of a given disease and by comparison of photographs taken at intervals, the effects of treatment can be judged.

Although this is still a pioneering profession, much work is being done to fashion medical and biological photography into an effective tool which will be of increasing help to physicians, surgeons, scientists and teachers.

Correspondence

SOLDIERS' LOADS

SIR,

Your reflective note of March 1951 in "At Random" prompts me to record the results of what might be considered an empirical field trial of soldiers' loads carried out in India during the 1939-45 war.

When the Indian Airborne Forces started to train in 1941, there was no unit transport and training was, of necessity, all carried out on foot. When the war ended, apart from the odd jeep per unit, training was still carried out on foot. The majority of the training consisted of long distance cross country marches and the loads carried varied around 40 lb. But in the case of certain personnel in the support companies who were carrying the main parts of the 3 in. mortar or M.M.G., the loads were between 60-90 lb. It must be realized that these loads *had to be carried* as although airborne-trolleys were available, they were more of a hindrance than a help as, in the almost complete absence of metalled tracks, they become bogged down in the dust of the Punjab or the mud of Imphal. These circumstances necessitated every conceivable method of load carrying being tried out with the equipment available.

It was found that for what might be termed a set-piece exercise with limited

manœuvre, the standard equipment was satisfactory. But the moment the infantry were required to carry out a long approach march or move through difficult country, the disadvantages of the equipment were soon apparent. They may be summarized as follows:

- (i) the irritating bounce of the full water-bottle and weighted haversack on the hips,
- (ii) the difficulty of taking off quickly the complicated equipment at halts,
- (iii) the feeling of great restriction (a) to chest movement and (b) to general freedom of movement caused by the presence of the attachment braces and ammunition pouches,
- (iv) the pulling up of the belt under the diaphragm when a heavy pack was carried.

Therefore to eliminate the "bounce" on the hips and to achieve freedom of movement between the shoulders and the pelvis, the following modifications to the standard equipment were carried out:

- (i) attachment braces and ammunition pouches were removed,
- (ii) the waterbottle was attached to the two buckles on the back of the belt,
- (iii) the small haversack or large pack was worn as a rucksack and just slipped over the shoulders,
- (iv) in lieu of ammunition pouches, a piece of webbing equipment, designed like a large bandolier, was slung loosely around one shoulder,
- (v) if additional equipment had to be carried, such as a second pack or a mortar barrel, it was held at both ends by a long strap, then placed on the first pack and the weight counter-balanced by leaning forwards on the long strap which came over each shoulder. Alternatively the strap could be shortened and the weight taken on the forehead. This method was also used to assist in the evacuation of casualties over difficult country, the casualty being carried piggy-back with a sling around his bottom that was carried over the orderly's forehead.

It is emphasized that these methods were employed in India where conditions of temperature, humidity and terrain make the problem somewhat different from that encountered in North-West Europe.

I am, Sir,

H.Q. B.T.B.

B.A.O.R. 2

13 Jun. 51.

Yours faithfully,

F. G. NEILD,

Major, R.A.M.C.

DATES OF PUBLICATION

Permanent International Committee
on Bacterial Nomenclature
June, 8, 1951.

SIR,

I have recently had a problem presented to me that can only be resolved by finding out the exact day of the month on which a journal and a book were

published, and I am writing to you as editor of the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS to seek your co-operation in an attempt to avoid a repetition of this incident.

My problem concerns the validity of the names *Salmonella wien* and *Salmonella montreal* which have been applied to the same bacterium. *Salmonella wien* was described and named in a paper read before an Austrian Society in September 1950, but the proceedings of that meeting have not yet been published. Kauffmann used *Sal. wien* in his book "Enterobacteriaceæ" published in March 1951. In the March issue of the *Canadian Journal of Public Health* appeared a paper describing the same organism as *Sal. montreal*. By the rules of the International Bacteriological Code the valid name is the earliest binomial published in a journal or book; earlier mention in a paper read at a meeting, or the date of receipt of a MS. by a journal have no standing. To solve my problem I have had to write to the editor of the *Canadian Journal of Public Health* and to the publishers of Kauffmann's book to ask the exact date of publication of each.

Problems such as this are few but they would be avoided if the exact date of publication appeared in each issue of all journals. I realize that publishers cannot accurately forecast the exact date of publication, but the date of issue of the previous number is known and could be inserted in a part of the next issue that will be preserved when the cover and advertisements are removed for binding.

The *Journal of General Microbiology* has recently started to print on the first page of each issue the date of publication of the previous issue; for example on p. 1. of Vol. 5, No. 1 appears:

"No. 3, Volume 4 of the *Journal of General Microbiology*
was issued on 10 October, 1950."

My request is that you would consider the insertion of the exact publication dates in your journal. I am making similar requests to the editors of the *Journal of Pathology and Bacteriology*, the *British Journal of Experimental Pathology*, the *Journal of Hygiene*, the *Journal of Clinical Pathology*, the *Journal of Comparative Pathology and Therapeutics*, the *British Veterinary Journal*, the *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service*, the *Journal of Dairy Research* and the *Journal of the Royal Naval Medical Service*.

Yours sincerely,
S. T. COWAN,
Joint Permanent Secretary.

The Editor,
The Journal of the Royal Army Medical Corps.

EDITOR'S NOTE.—In response to this request the date of the issue of the previous number will be shown as suggested at the head of the first page.

Matters of Interest

THE King, as Sovereign of the Most Honourable Order of the Bath, attended a Service he had Commanded to be held in Westminster Abbey on May 24, 1951.

This beautiful and impressive Service was attended by the following Serving and Retired Officers of the Army Medical Services who are Companions of the Order.

Lieut.-General Sir Neil Cantlie, Director-General Army Medical Services, Major-Generals Sir Ralph B. Ainsworth, Knt., H. P. W. Barrow, R. E. Barnsley, F. Harris, K. A. M. Tomory, F. R. H. Mollan, T. Young.

BRIGADIER COKE, Director-General of the Canadian Army Medical Services, was a visitor during Corps Week and attended the Ball at Aldershot on June 6, the Corps Sports on June 7 and the At Home and Dinner on June 8.

Brigadier Coke attended the 13th Congress of Military Medicine and Pharmacy in Paris from June 16 to 26 and then paid a visit to Germany before he returned to the U.K. Afterwards he visited certain military medical establishments in this country.

Lieut.-Colonel T. Williams of the New Zealand Army Medical Corps was also a visitor during Corps Week and attended the Corps Sports and the At Home. He represented New Zealand at the Congress of Military Medicine and Pharmacy in Paris and will later be visiting some of the military medical establishments in this country.

COLONEL WANSBOROUGH, Director of the Canadian Army Dental Corps, is on a visit to the U.K. and attended the 13th Congress of Military Medicine and Pharmacy in Paris.

THE Royal Army Medical Corps Annual Dinner was held at the Trocadero on Friday, June 8, under the Presidency of the Director-General, Army Medical Services. Those present included:

Lieut.-General Sir Treffry Thompson, Major-General O. W. McSheehy, Major-General J. C. Dowse, Major-General R. E. Barnsley, Major-General T. Menzies, Major-General J. M. Macfie, Major-General A. J. Beveridge, Major-General F. Harris, Major-General K. A. M. Tomory, Major-General R. D. Cameron, Major-General F. R. H. Mollan, Major-General T. Young.

Brigadier W. L. Coke, *O.B.E.*, Director-General, R.C.A.M.C., Lieut.-Colonel T. Williams, N.Z.A.M.C., and Capt. J. J. H. Connors, R.C.A.M.C.

The D.G.A.M.S. proposed the health of Brigadier Coke, Director-General of the R.C.A.M.C. He welcomed Brigadier Coke to the Dinner and said that



last year we were glad to welcome Major-General Kingsley Norris, the Director-General of the Medical Service of Australia.

The R.C.A.M.C. had recently established a Headquarter Mess at their depot at Camp Borden, Ontario, and he said that this was a step forward in the history of the R.C.A.M.C. The D.G.A.M.S. then spoke on the early days in Canada

and said that the earlier members of the medical profession came from the medical officers attached to the British regiments in Canada at the end of the eighteenth century. A certain number of these medical officers elected to remain in Canada when their regiments returned and they took with them their traditions of Army Service and of professional conduct. He said that the Officers of the Corps welcomed this opportunity of commemorating the foundation of the Headquarter Mess in Canada by presenting the Officers of the R.C.A.M.C. with a Silver Cup as a token of affection and esteem and in the firm knowledge that it would make closer those indissoluble bonds which unite the two Corps.

Brigadier Coke in his reply thanked the D.G. for the gift, which would be cherished as a lasting link between the two Corps and pointed out how much the military medical services in Canada had benefited from the R.A.M.C. Their organization and training was based on the Corps and they were determined that this should continue. He then presented the D.G.A.M.S. with a training film which showed the work of the R.C.A.M.C. in the field.

THE D.G.A.M.S. was a guest at the Annual Dinner of the Royal Army Dental Corps, which was held on June 1. In an after-dinner speech he outlined the steps which had been taken to establish the new dental specialist organization. He said that the aim must be to raise the professional status of the R.A.D.C. to the highest possible level. The arrangements for post-graduate periods of study in order to allow officers to take higher qualifications had been settled and he hoped that as many officers as possible would endeavour to qualify as specialists.

At Aldershot on June 2 previous to their departure for Cyprus, the 23rd Para. Fd. Amb. was inspected by the D.G.A.M.S. The parade was under the command of Lieut.-Colonel A. Young, *D.S.O.* After the inspection the Fd. Amb. marched past; the D.G. then addressed the troops, saying how pleased he was to see their smartness on parade but he expected this standard of a parachute unit. He wished them good luck and a safe return.

BRIGADIER J. C. COLLINS, who has returned from the Far East, has been appointed D.D.M.S., Headquarters North Command, in relief Major-General J. J. Magner.

NOTES FROM A.M.D.

BY

OUR SPECIAL CORRESPONDENT

WE are happy to record that six officers of the R.A.M.C. and late R.A.M.C. received awards in the Birthday Honours List. Major-General J. M. Macfie.

C.B.E., *M.C.*, *M.B.*, *K.H.S.*, became a Companion of the Order of the Bath. In the Order of the British Empire, Colonel W. A. D. Drummond, *F.R.C.S.*, was promoted to Commander; Lieut.-Colonel D. G. Levis, *M.B.*, and Lieut.-Colonel A. J. Maciver, *M.B. (T.A.R.O.)*, became officers; and Majors R. S. Hunt and W. Price became Members.

RECENTLY we came across a medical officer who has started a collection of misspelt medical terms. It appears that this officer receives frequent letters from the public on medical matters and each unusual spelling of a disease is added to his collection. We were permitted to examine some of the specimens and offered some advice on classification. There were the usual varieties of pneumonia—Plural phumonia suggested a widespread involvement of the lungs and pmonia introduced, we thought, some difficulties in pronunciation. We sympathized with the individual who found “abscess” to have a confusing number of consonants: he gave a number of alternative spellings by referring to “a TB aseses (abseses)” and later to “absese” and “abeses.” Another writer gave similar treatment to a different condition by complaining of Valuar Hearts Deceace and later of Valoular Heart Discease. Our speculation was aroused by “a scepical spine” and Strankled Urnia.” This last was, as far as we remember, associated with “frombosis.” But we thought the best specimen was a disease suggesting the risk to which progress may expose us all—“Pylon Ephritis.” We are reminded of an experience of our own, when a fond mother wrote to us to say that her son had been discharged with 390 K.Rs., and were they serious, please?

THE other day we met a senior officer of our acquaintance whose bronzed appearance was indicative of recent service in the Far East. His first questions after the usual compliments had been exchanged were enquiries concerning the present whereabouts of old friends in the Corps.. We reluctantly confessed that we were not very up to date on locations and resolved to refresh our memories. Ruminating on the lack of information about this, it occurred to us that readers might be interested to know what other officers were doing. We soon found that it was necessary to restrict our enquiries to officers above the rank of major in order to confine the task to reasonable dimensions. We decided that it should be possible to complete a rapid mental tour of the United Kingdom during this month, and resolved mentally to travel the whole world before the end of the year.

Commencing in London, we paid a brief visit to the War Office, where we found, working under the genial direction of Major-General F. Harris, *D.D.G.A.M.S.*, the *A.D.G.s* of the *A.M.D.* branches and the Inspector of Training, Brigadier F. K. Escritt. At *A.M.D.*1 was Colonel E. H. Hall, moving medical officers over the chessboard of the world. We thought there were many similarities between the duties of a personnel branch and the rules of chess. In

the midst of these profound thoughts we were hurried along to Colonel J. H. J. Crosse of A.M.D.2, whose office seemed to have an international flavour—so many are the liaison duties of this branch. At A.M.D.3—downstairs again: our guide was more concerned with arithmetical progression than with economy of effort—At A.M.D.3 we found that Colonel J. P. Douglas was away at a committee meeting. This branch handles the “Q” side of medical affairs. Upstairs again at A.M.D.5, where we passed the door of Major-General T. Young, Director of Army Health, on our way to see Lieut.-Colonel R. W. Scott, A.D.A.H. of the hygiene branch. Finally we reached A.M.D.7—happily on the same floor—where we found Lieut.-Colonel M. S. W. Bisdee in charge of clinical affairs. Associated with this branch are the Consultants to the Army: the Director of Surgery, Brigadier A. G. Harsant; the Director of Medicine, Brigadier W. R. D. Hamilton; the Director of Pathology, Brigadier A. Sachs and the Director of Psychiatry, Brigadier J. Rosie. Brigadier Rosie has recently completed a hectic tour of B.A.O.R. and B.T.A. We also learnt that if we were prepared to hang around A.M.D.7 for a week we might meet the Advisers: Lieut.-Colonel H. N. Perkins (Oto-Laryngology), Lieut.-Colonel M. J. Milne (Physical Medicine), Lieut.-Colonel B. Levy (Venereology), Lieut.-Colonel T. M. Corcoran (Radiology), Lieut.-Colonel J. B. George (Ophthalmology) and Lieut.-Colonel K. F. Stephens (Anæsthetics).

However, time being short, we hurried off to Eastern Command, where Major-General K. A. M. Tomory is D.D.M.S., Colonel E. J. S. Bonnett is D.D.A.H. and Lieut.-Colonel H. T. Chiswell is A.D.M.S. The A.D.M.S. of an infantry division and East Anglian District is Colonel K. McNeil whose field ambulance commanders are Lieut.-Colonels G. B. Heugh, F. King and S. G. M. Lynch. Colonels B. J. Daunt and R. H. Robinson are A.D.sM.S. of London District and Home Counties District respectively. We later made a call on the Q.A. Military Hospital, Millbank, commanded by Colonel F. J. O'Meara, and the R.A.M. College, whose Commandant is Major-General F. R. H. Mollon. At these establishments were the Readers: Lieut.-Colonel J. A. MacDougall (Military Surgery); Lieut.-Colonel L. C. Chevens (Psychiatry); Lieut.-Colonel C. L. Day (Army Health); Lieut.-Colonel A. M. Pugh (Pathology).

As we pay our respects to Colonel A. E. Campbell, Professor of Army Health at the College, we think we ought to explain that no order of precedence is being attempted in these notes. Colonel A. N. T. Meneces was at Millbank as the Consulting Physician to the R.A.M. College; Lieut.-Colonel W. H. Hargreaves as O. i/c Medical Division and Lieut.-Colonel H. Pozner as Command Psychiatrist. Lieut.-Colonel A. J. Warwick was in the laboratory—he is A.D.P. Eastern Command.

At this stage we drew mental breath and hoped we had covered all the officers normally stationed in London.

During lunch at the Headquarters Mess we saw Lieut.-Colonel C. E. Bull, who of course is Staff-Captain to the Director-General and we immediately recollected Lieut.-Colonel J. H. Plumridge, who is a D.A.D.G. in A.M.D.1.

After lunch we decided that Woolwich is a part of London, and so we called at the Royal Herbert Hospital, where we found Lieut.-Colonel W. A. Y. Knight commanding. Lieut.-Colonel R. J. Morrison was O. i/c Medical Division there. We denied ourselves the pleasure of visiting Shorncliffe (Lieut.-Colonel A. J. A. Gray) and Colchester (Lieut.-Colonel S. W. K. Arundell) solely because of exhaustion.

Having lived very quietly for a few days, during which time we met Colonel P. F. Palmer, who was on leave after serving in Malaya, we then thought we might be equal to a survey of Southern Command.

Under the D.D.M.S., Major-General T. Menzies, are the D.D.A.H., Colonel R. T. P. Tweedy, and the A.D.M.S., Lieut.-Colonel P. T. L. Day. We heard that Colonel T. H. Twigg was about to vacate the appointment of A.D.M.S. Aldershot District, but we were not able to discover his successor. A.D.M.S. Salisbury Plain District (and an armoured division) was Colonel C. E. Eccles, with Lieut.-Colonels R. D. Menzies and T. D. Phelan as his field ambulance commanders. Colonel R. H. C. Pryn was A.D.M.S. South-West District. After visiting so many members of the staff, we found a pleasing contrast in the regimental atmosphere of the Depot, under Colonel T. F. M. Woods (Commandant), Lieut.-Colonel W. M. Oxley (Assistant Commandant) and Lieut.-Colonel R. T. Shipman (Chief Instructor). In the same neighbourhood we covered the Field Training School (Commandant: Lieut.-Colonel D. M. Ahern) and the Army School of Health (Commandant: Colonel H. E. Knott; Senior Instructor: Lieut.-Colonel T. M. W. D'Arcy).

We had a mental lunch at the Cambridge Hospital where we renewed acquaintance with Colonel V. C. Verbi, and met also Lieut.-Colonel M. F. Kelleher (O. i/c Medical Division) and Lieut.-Colonel R. A. Stephen (O. i/c Surgical Division). The Consulting Surgeon to the R.A.M. College, Colonel C. M. Marsden, is also frequently to be found there. At the Louise Margaret Hospital was Lieut.-Colonel I. H. C. Morton, who is also War Office Adviser in Obstetrics.

On our way down to Netley to see the Royal Victoria Hospital with its miles of corridors we passed the Connaught Hospital, which accommodates Army cases of T.B. who are awaiting transfer to a civil sanatorium. The Connaught was commanded by Colonel F. C. Hilton-Sergeant, but we were told that Lieut.-Colonel R. C. Langford would be taking over in August. The military hospitals at Wheatley (Lieut.-Colonel C. A. Levy) and Tidworth (Lieut.-Colonel C. A. Slaughter) we were unfortunately unable to visit, nor did we see the Leishman Laboratory (Colonel L. R. S. MacFarlane—A.D.P. Southern Command) nor the David Bruce Laboratory (Lieut.-Colonel M. H. P. Sayers). We arrived at Netley and met the O.C., who is Colonel J. W. Hyatt. The Convalescent Wing is in the charge of Lieut.-Colonel J. M. Carnow and in charge of the Psychiatric Division of the hospital is Lieut.-Colonel J. F. Murphy. We heard here that Lieut.-Colonel J. D. Cruickshank is at Porton. Not very far away from Netley was A.D.M.S.(E) Southampton—Lieut.-Colonel T. J. L. Thompson. We bid a

reluctant farewell, as the travelogues say, to Netley and arrived home in the sma' wee hours, hoping we had traced every senior officer in Southern Command.

Subsequently and mentally we journeyed to Northern Command where Major-General J. C. Collins, back from the Far East, is D.D.M.S. The D.D.A.H. is Colonel P. J. L. Capon and the A.D.M.S. Lieut.-Colonel M. J. Kohane. Colonel E. M. Hennessey is A.D.M.S. North Midland District, but at Catterick District we found Colonel D. Bluett about to depart for Germany. Commanding the hospital at Catterick was Colonel W. G. S. Foster and in charge of the medical and surgical divisions respectively were Lieut.-Colonels F. Holmes and P. R. Wheatley. The Command Psychiatrist was Lieut.-Colonel J. McQuillan and Lieut.-Colonel H. C. M. Walton was A.D.P. At York the commanding officer of the military hospital was Lieut.-Colonel J. Aitchison. As we were up North we decided to go over the border to see Scottish Command. We heard there that Brigadier O. C. Link, the D.D.M.S., was retiring shortly. Lieut.-Colonel E. J. Curran was there as A.D.A.H. and Lieut.-Colonel G. R. Christian as A.D.P. was at Cowglen. Commanding the Military Hospital, Cowglen, was Lieut.-Colonel D. T. Swift. A.D.S.M.S. Highland and Lowland Districts were Colonel R. V. Franklin and Colonel A. M. Simson.

Travelling South again, we looked in at Western Command, where we found Major-General J. M. Macfie, with Colonel M. R. Burke as his D.D.A.H. The A.D.M.S. was Lieut.-Colonel J. W. Orr. In Chester, the military hospital was commanded by Lieut.-Colonel A. Gleave, and Lieut.-Colonel D. W. Moynagh, the Command Psychiatrist, was based there. Colonel W. C. MacKinnon was A.D.M.S. North-West District and Colonel G. Moulson at Mid-West District.

We decided then that Northern Ireland District could best be contacted by telephone, and so we called up Colonel W. J. Robertson and discussed a modest item of business with him. Lieut.-Colonel C. King is O.C. Military Hospital, Waringfield.

It is scarcely necessary to mention Colonel T. I. Dun, who is in charge of Medical Services and W.R.A.C. Records, as most readers must be familiar with his name and appointment.

We ended this rapid and exhausting mental tour with a feeling that we might easily have omitted somebody. Those officers whom we have mentioned meeting may perhaps be puzzled over our identity and it would be as well to say that we are nebulous and intangible creatures, with a tendency towards fabricatory embellishment!

COLONEL G. O. F. ALLEY retired on March 30, 1951. He was appointed to a permanent commission in the R.A.M.C. in mid-1915 and served with distinction with the B.E.F. in France from 1916 to 1919. From 1920 to 1922 he was in Mesopotamia and from there went to India. He again served in India in 1929-31, and in Egypt 1935-36. In August 1941 he was appointed to command the Military Hospital, Barming Heath, and from there to 93 General Hospital

about a year later. For another year he was in PAIFORCE and M.E.F. and then went down to South Africa to command hospitals there. In 1946 he became A.D.M.S. 203 British Military Mission and nine months later he returned to the United Kingdom having meanwhile been promoted substantive colonel. Colonel Alley was A.D.M.S. Highland District from the beginning of 1947 until he went to East Anglian District, where he continued to serve up to the date of his retirement. During his service he was decorated with the Military Cross in 1917, was awarded a bar to this decoration in 1918 and a second bar in the same year. In 1949 he was made an Officer of the Order of St. John of Jerusalem.

WE have not had news of any more casualties to medical officers in Korea, and we hear that Capt. T. Dungavel who was wounded is now back at duty. We were greatly shocked to learn of the accidental death of Lieut.-Colonel J. A. Manifold in Saudi Arabia. His passing will be a great loss to the Corps.

Obituary

Major JOHN STARTIN

IN Plymouth on June 1, 1951, Major John Startin, *M.C.*, *R.A.M.C.*, Retired.

Born July 28, 1883, he took the *M.R.C.S.England*, and the *L.R.C.P.London*, in 1908, having been educated at Bedford College and St. Thomas's Hospital.

He joined the Corps August 1, 1908. Promoted Captain February 1, 1912, and Major August 1, 1920, he retired August 1, 1928.

Serving in India on the outbreak of war he proceeded to Mesopotamia, November 28, 1914, and took part in the defence of Kut, being taken prisoner April 28, 1916, on its fall. He remained a prisoner in the hands of the Turks till April 1, 1918; his captivity affected his health.

Thrice mentioned in despatches and also brought to notice for valuable service rendered while prisoner, he was awarded the *M.C.*, 1914-15 Star, British War and Victory Medals.

A well-known oarsman—he had rowed for St. Thomas's Hospital. He was largely responsible for the pioneer work in the formation of the Plymouth Amateur Rowing Association, of which he was Chairman at the time of his death.

The Plymouth Festival of Britain Committee and Royal Air Force Associa-

tion Carnival Committee were among the bodies which welcomed his flair for organization.

For the last two paragraphs I am indebted to the *Western Morning News*, Plymouth, of June 2, 1951.

J. G. F.

Major-General Sir PERCY TOMLINSON

Estate of Major-General Sir Percy Tomlinson, *K.B.E., C.B., D.S.O.*, £3,775.

Colonel HUGH RICHARDSON

IN St. Andrews on June 19, 1951, Colonel Hugh Richardson, *D.S.O., M.D., R.A.M.C., T.A., Retired.*

Born in India, July 6, 1873, he took the M.B. Edinburgh, in 1895, the M.D. in 1903 and the D.P.H. St. Andrews, in 1907.

He was commissioned Lieut. R.A.M.C. April 25, 1900, and proceeded to South Africa in June with No. 13 General Hospital, where he remained until 1902, being awarded the Queen's Medal with the Clasps: Cape Colony, Orange Free State and Transvaal and the King's Medal with two Clasps.

He resigned in 1902 and took up practice in St. Andrews.

In 1907 he joined the R.A.M.C. Volunteers, later R.A.M.C., T.A., but resigned. He was commissioned Major R.A.M.C., T.A., in Sept. 1914 and was promoted Lieut.-Colonel in 1915.

He served in the 1914-18 war in Gallipoli, Egypt, Sinai and Palestine. Twice mentioned in despatches, he was awarded the *D.S.O., 1914-15 Star, British War and Victory Medals.*

After the war he served with the Ministry of Pensions in Glasgow, first as Commissioner and later as Principal Medical Officer Ministry of Pensions in Scotland, until 1939, when he retired and returned to St. Andrews.

During the war of 1939-45 he took over the duties of Assistant in the Anatomical Department of St. Andrews University until advancing years compelled him to resign in 1942.

A man of infinite charm. He was an active Member of the Royal and Ancient Golf Club, where his admirable personal qualities made him a deservedly popular figure.

T. J. M.

J. G. F.

Lieut.-Colonel JOHN ALLISTAIR MANIFOLD

ACCIDENTALLY killed in Saudi Arabia, aged 38. Eldest son of Major-General John Alexander Manifold, of Gr. Bentley, Essex.

Extracts from the "London Gazette"

HONOURS AND AWARDS

London Gazette 27.4.51

The King has been graciously pleased to give orders for the following promotions in, and appointments to the Most Excellent Order of the British Empire, in recognition of distinguished and gallant services in Malaya during the period from 1st July to 31st December, 1950:

To be Additional Commander of the Military Division of the said Most Excellent Order:

Brigadier Joseph Clinton Collins, *O.B.E.*, late Royal Army Medical Corps.

To be Additional Members of the Military Division of the said Most Excellent Order:

No. 7261682 Warrant Officer Class II Leslie Holding, *R.A.M.C.*

Captain (temporary) Gordon Clifford Smart, *R.A.M.C.*

The King has been graciously pleased to approve the award of the British Empire Medal (Military Division) in recognition of distinguished and gallant services in Malaya, during the period from 1st July to 31st December, 1950, to the undermentioned:

No. 7348392 Staff-Sergeant Cecil Charles Fogell, *R.A.M.C.*

The King has been graciously pleased to approve that the following be Mentioned, in recognition of gallant and distinguished services in Malaya, during the period 1st July to 31st December, 1950:

Royal Army Medical Corps

Major J. H. Bennett, *M.B.*

Major (temp.) T. F. Jouning, *T.D.*

Capt. J. T. Rowling, *M.B.*

7262529 S/Sgt. G. G. Turnbull.

22224516 A/Sgt. R. Burke.

London Gazette 25.5.51

The King has been graciously pleased to confer the award of "3 Clasps" to the Territorial Efficiency Decoration upon the following officer:

Major R. H. Mortis, *T.D.*, *R.A.M.C.(T.A.)*

The King has been graciously pleased to confer the award of the "1st Clasp" to the Territorial Efficiency Decoration upon the following officers:

Royal Army Medical Corps

Lt.-Col. H. D. Chalke, *O.B.E.*, *T.D.*

Lt.-Col. C. K. Sconce, *T.D.*, *M.D.*

Maj. (A/Lt.-Col.) W. H. Wolstenholme, *O.B.E.*, *T.D.*

Maj. D. S. Austin, *T.D.*

Maj. J. G. McDowell, *T.D.*, *M.D.*

Maj. F. E. Street, *T.D.*

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration and 1st Clasp" upon the following officers:

Royal Army Medical Corps

Lt.-Col. (A/Col.) D. H. Young.
 Lt.-Col. A. Barber, *M.C.*, *M.D.*
 Lt.-Col. C. Berens.
 Lt.-Col. A. T. Burn, *M.B.*
 Lt.-Col. R. P. Kemp.
 Lt.-Col. A. McQuiston.
 Lt.-Col. G. C. Pether, *M.D.*, *M.R.C.P.*
 Maj. (A/Col.) P. Hawe, *M.B.*, *F.R.C.S.*
 Maj. (Hon. Lt.-Col.) R. Evans, *O.B.E.*, *M.D.*
 Maj. (Hon. Lt.-Col.) C. E. Moorhead, *O.B.E.*, *M.B.*
 Maj. (Hon. Lt.-Col.) H. B. Porteous.
 Maj. R. W. Evans.
 Maj. J. L. Fraser.
 Maj. J. R. Hamerton, *M.B.*
 Maj. E. Shipman.
 Capt. F. Buchan.

R.A.D.C.

Maj. J. H. Davies.

The King has been graciously pleased to confer the award of the "Territorial Efficiency Decoration" upon the following officers:

Royal Army Medical Corps

Lt.-Col. R. G. W. Ollerenshaw, *B.M.*
 Lt.-Col. A. B. Pain.
 Lt.-Col. T. D. Pratt.
 Hon. Lt.-Col. F. B. Mackenzie, *D.S.O.*, *M.C.*, *T.D.*, *M.B.*, retired.
 Maj. E. V. Bevan.
 Maj. A. B. Dick.
 Maj. A. K. Dougall, *M.C.*
 Capt. (Hon. Maj.) S. R. A. Beckett.
 Capt. (Hon. Maj.) G. F. Petty.
 Capt. (Hon. Maj.) J. A. W. Shearer.

Royal Army Dental Corps

Capt. W. J. Collins.

PROMOTIONS

R.A.M.C.

- | | |
|---|---------|
| (a) To be Colonel: | |
| Lt.-Col. L. R. H. Keatinge, <i>O.B.E.</i> , <i>M.B.</i> | 30.4.51 |
| (b) To be Lt.-Col.: | |
| Maj. K. F. Stephens, <i>M.B.</i> | 30.4.51 |
| (c) To be Maj.: | |
| Capt. A. A. Gregory-Dean, <i>M.D.</i> | 24.4.51 |
| (d) To be Maj. (Qr.-Mr.): | |
| Capt. (Qr.-Mr.) R. J. Buggy | 20.4.51 |

(Substituted for the notfn. in *Gazette* (Supp.) dated 17.4.51)

APPOINTMENTS TO PERMANENT COMMISSIONS

R.A.M.C.

- (a) From Short Serv. Commn. to be Capt., retaining present seniority:
Capt. Robert Alexander Miller, M.B. 17.4.51
- (b) From Reg. Army, Res. of Offrs. to be Capt., with sen. 23.3.49:
Capt. Kenneth Panton Milne, M.B. 26.4.51
- (c) From Short Serv. (Spec.) Commn., to be Maj., retaining present seniority:
Maj. Norman Hampton Stewart, M.B. 25.5.51
- (d) From Short Serv. Commn. (Admin. & Tech.) to be Lt. (Qr.-Mr.):
Maj. James Clifford Brierley Wycherley. 11.3.51
(Promoted to Capt. (Qr.-Mr.) w.e.f. same date.)

APPOINTMENTS TO SHORT SERVICE COMMISSIONS

R.A.M.C.

- (a) From Nat. Serv. List, to be Capt., retaining present seniority:
Capt. Robert Alexander Miller, M.B. 16.4.51
- (b) From Nat. Serv. List, to be Lt., retaining present seniority:
Lt. John Lapper, M.B. 16.3.51
Lt. John Frederick Watkins, M.B. 27.4.51
Lt. William Paton McClay, M.B. 4.5.51
- (c) From Emerg. Commn., to be Capt. (Qr.-Mr.), retaining present seniority:
Capt. (Qr.-Mr.) Leon Harold Estlick. 1.1.51
- (d) From Women's Forces emplyd. with the R.A.M.C. (Short Serv. Commn. (Type "B")), to be Capt., retaining present seniority:
Capt. Kathleen Laura Prendergast 10.4.51
- (e) From Women's Forces emplyd. with the R.A.M.C. to be Capt., retaining present seniority:
Jun. Comdr. Muriel Teresa McKenna, M.B. 10.4.51

SPECIAL APPOINTMENTS

R.A.M.C.

- (a) Maj.-Gen. John Cecil Alexander Dowse, *C.B.*, *C.B.E.*, *M.C.*, *M.B.*, is appointed Colonel Commandant R.A.M.C., 27th Nov., 1950, vice Maj.-Gen. Oswald William McSheehy, *C.B.*, *D.S.O.*, *O.B.E.*, *M.B.*, resigned.

R.A.D.C.

- (a) Maj.-Gen. John Wren, *F.D.S.*, late *R.A.D.C.*, is appointed Honorary Dental Surgeon to the King, 13th Jan., 1951, vice Col. Benson Edward Gentleman, retired.
- (b) Col. William Lawson Pearson, late *R.A.D.C.*, is appointed Honorary Dental Surgeon to The King, 23rd Jan., 1951, vice Col. Samuel Hamilton Woods, *C.B.E.*, *F.D.S.*, retired.
- (c) Colonel John Lawson Gibson, late *R.A.D.C.*, is appointed Honorary Dental Surgeon to The King, 5th Mar., 1951, vice Maj.-Gen. Harold John Higgins, *O.B.E.*, *F.D.S.*, deceased.

E. J. G.

Book Reviews

LAUGHS WITH THE MEDICOS. Compiled and published by S. Evelyn Thomas, London. No date. Pp. 64. Price 1s. 6d.

A generously illustrated selection of jokes and stories, old and new, of doctors and patients.

J. B. N.

PHOTOGRAPHY IN THE LIFE OF THE NATION. Souvenir Handbook of the Royal Photographic Society's Festival of Britain Exhibition. Pp. 24. Price 1s.

A well illustrated and nicely presented booklet showing the development of photography, both plain and coloured in modern life, industrial research and science.

The photographic illustrations of a forged letter and of a photo-finish of a race with six horses in a group are particularly arresting.

T. O. T.

NOT LEAST IN THE CRUSADE: A Short History of the Royal Army Medical Corps. Peter Lovegrove. 1951. Pp. xi and 90. Aldershot: Gale & Polden Ltd. Price 5s. in cloth: 1s. in paper wrapper.

Author and publishers have deserved well, not only of the Corps, but also of the Royal Army Dental Corps and of Queen Alexandra's Royal Army Nursing Corps. Mr. Lovegrove has performed a masterly work of selection and compression in tracing the history of British Military Medicine from A.D. 43 to the Golden Jubilee in 1948. It is stimulating to find stress placed upon professional work (six of the eleven illustrations show the Corps doing a job in the field), and upon progressive outlook. The wonder is, not that some points have had to be omitted, but that so much has been included.

More than one dubious tradition has been sacrificed in favour of accuracy, and the resulting story is true, graphic and absorbing. "Not Least in the Crusade" can be strongly recommended, and well deserves Sir Neil Cantlie's laudatory foreword.

Nevertheless, this work and its predecessors—Gordon, Gore and Smith—would all go together into one pocket. There is still room for a full, authoritative history of the Medical Services of the British Army.

J. B. N.

Notices

I

FIFTH INDIAN DIVISION

THE sixth annual dinner of the Officers' Dinner Club will be held on Friday, October 5, 1951, at Simpson's in the Strand, London, W.C.2.

The guest of honour will be Vice-Admiral the Earl Mountbatten of Burma, *K.G., P.C., G.C.S.I., G.C.I.E., K.C.B., D.S.O.*, and the Chairman will again be General Sir Mosley Moyne, *G.C.B., C.B.E., D.S.O.*

Dress: dinner jacket, uniform, or lounge suit.

Tickets 16s. 6d. (members) and 21s. 6d. (non-members).

II

CASUALTIES UNION

BUXTON TROPHY 1951

CASUALTIES UNION invites entries for the Annual Open Competition in Diagnosis and First Aid, which will be decided in London on Sunday, October 7, 1951. *The Competition will be Realistic Throughout.* Copies of the rules can be obtained by sending a stamped addressed envelope to the Hon. Secretary, 29, Whyteleafe Hill, Whyteleafe, Surrey.

The last date for ordinary entries is August 31, 1951 (although entries will be accepted until September 7, 1951, if accompanied by a special late fee).

III

THE XITH INTERNATIONAL DENTAL CONGRESS IN LONDON JULY 19-26, 1952

FOREWORD BY DR. E. WILFRED FISH, *C.B.E.*

President Designate

THE last fifty years have seen dentistry evolve from an empirical craft into a scientific profession. The next fifty should see the benefits of dental science and practice extended to the great mass of humanity. To do this we all know we must start with the children; but how?

The Scandinavian countries have a great deal to put before us, American

research has a big story to tell, the Continent of Europe, the East and the Commonwealth all have a contribution to make—and we here in London are planning an International Congress. That means that we believe the way to make progress is to get all the experts to come together and to meet other practitioners from all over the world so that they can talk it over man to man. We are providing every facility and amenity we can think of to further personal contacts between those who attend.

There will be many opportunities for these informal conversations at the Festival Hall, in the Foyer, in the restaurants, on the riverside terraces or on the roof garden: these will be at our disposal throughout the week. We believe that more can be discovered from a demonstration or from a talk with a colleague about his ideas, how he works and what he believes or about the way he thinks these world problems should be solved, than by reading any number of books and papers. We shall also have symposia in the Great Hall where the world's best dental brains will debate these urgent problems, and we want you to take part in these discussions. We believe this Congress is taking place on the threshold of a new era in dentistry.

Bring your ladies too; we hope they will make the Festival Hall their social centre. It is right in the heart of London and all roads lead to it. It has a lovely view of the river and of some of the most historical buildings in London. We shall do our best to show them our City and the country round and to keep them interested and amused. There will be dinners and dancing, receptions, theatres and shows, a banquet, excursions—and a welcome.

IV

THE Royal Institute of Public Health and Hygiene announces that the next bi-annual Course of Instruction for the Certificate in Public Health, and for the Diploma in Industrial Health (Part I), will commence on Friday, October 5, 1951.

This leads to Courses for the Diploma in Public Health, and for the Diploma in Industrial Health (Part II), respectively.

(All Courses may be taken either whole-time, or part-time.)

Prospectuses, enrolment forms, and full details, may be obtained from the Secretary of the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W.1, England.

V

THE Royal Institute of Public Health and Hygiene announces that Professor WILSON SMITH, M.D., F.R.S., Professor of Bacteriology, University College Hospital Medical School, has been appointed as the "Bengue Memorial Award Lecturer, 1951."

The subject will be "Influenza Virus Research and its Biological Implications" (illustrated).

The Lecture (to which *admission is free, and without ticket*) will be given in the Lecture Hall of the Institute, at 28, Portland Place, London, W.1, on Wednesday, September 19, 1951, at 3 p.m.

Applications for reservations may be made to the Secretary.

JOURNALS RECEIVED

The following journals have been received and are available in the R.A.M. College Library: *Practitioner*, *Military Surgeon*, *Medical Press*, *Bull. of Hygiene*, *Medical Journal of Australia*, *Lancet*, *B.M.J.*, *South African Medical Journal*, *Indian Journal of Medical Research*, *Journal of the Royal Sanitary Institute*, *Glasgow Medical Journal*, *Bull. of the Johns Hopkins Hospital*, *Indian Journal of Malariology*, *Post Graduate Medical Journal*, *Journal of the Roy. Inst. of Public Health & Hygiene*, *St. Barts Hospital Journal*, *British Medical Bulletin*, *Chronicle of World Health Organisation*, *Revista de Medicina Militar*, *Proc. of the Roy. Society of Medicine*, *Journal of the R.A.S.C.*, *Bull. International de Services de Santé*, *Tropical Diseases Bull.*, *Edinburgh Medical Journal*, *Journ. of R.A.V.C.*, *Clinical Proceedings*, *Indian Medical Gazette*, *Journ. of the Royal Egyptian Medical Assn.*, *Revue de Corps de Santé Militaire*, *Quarterly Journal of Medicine*, *Military Review*, *Yale Journal of Biology & Medicine*, *East African Medical Journal*, *Clinical Journal*, *U.S.A. Forces Medical Journal*, *Military Review*, *British Journal of Dermatology and Syphilis*, *Canadian Journal of Public Health*, *Journal of Royal Naval Medical Services*, *London Hospital Gazette*.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s., payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

September 1951

No. 3

Vol. XCVII

Journal

OF

THE

Royal Army

Medical Corps



ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,

K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

DOCUMENTS DEPARTMENT

NOV 26 1951

LIBRARY
UNIVERSITY OF CALIFORNIA

CONTENTS

ORIGINAL COMMUNICATIONS	PAGE		PAGE
On the Treatment of Tinea in Malaya. By Major KEMBLE GREENWOOD, M.B.Lond., M.R.C.P.Ed., R.A.M.C.	157	A Criticism of Military Psychiatry in the Second World War. By Captain H. J. C. J. L'ETANG, B.A., B.M., B.Ch., R.A.M.C. (T.A.)	192
Introduction to the Field Training School Royal Army Medical Corps. By ANON	165	AT RANDOM	
Preliminary Communication on the Incidence of Epidermophytosis in Army Recruits. By Lieutenant A. J. DAVIES, R.A.M.C.	168	Field Training	198
The British Army Health Organization. By Lieut.-Colonel R. W. SCOTT, R.A.M.C.	172	CLINICAL, HISTORICAL AND OTHER NOTES	
Case of Mandibular Prognathism Corrected by Kostecka's Operation. By D. T. H. PAINE, F.R.C.S., Major D. V. TAYLOR, F.D.S., H.D.D., R.A.D.C., Captain P. FELIX, F.D.S., R.A.D.C.	177	Case Report of a Premature Infant. By T/Major G. B. CHAMBERLAIN, M.B., B.S., D.R.C.O.G., R.A.M.C.	201
The Honorary Physicians and Surgeons to the Sovereign. By Major J. B. NEAL, R.A.M.C.	183	Territorial Army Ambulance Challenge Shield Competition. By Brigadier F. K. ESCRITT, O.B.E., Late R.A.M.C.	203
		Report on the XIII International Congress of Military Medicine and Pharmacy. By THE DIRECTOR GENERAL ARMY MEDICAL SERVICES	205
		CORRESPONDENCE	214
		MATTERS OF INTEREST	218
		OBITUARY	224
		EXTRACTS FROM THE "LONDON GAZETTE"	225
		REVIEW	225



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET • LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : " Instruments, Wesdo, London "

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

THE TREATMENT OF TINEA IN MALAYA

BY

Major KEMBLE GREENWOOD, M.B.Lond., M.R.C.P.Ed.

Royal Army Medical Corps

Dermatologist, Military Hospital, Singapore

Lecturer in Dermatology, University of Malaya

THE evaluation of the relative efficacy of various fungicides in Malaya where widespread fungus infections are common would seem at first sight to be a simple matter. Obviously there will be individual variations from case to case; for this reason it was determined at the beginning of the assay that cases of bilateral tinea only would be accepted, and that the area of skin to be treated would be divided into two equal halves for treatment purposes. In this manner it was hoped to eliminate many variables, such as fungus types, personalities of patients, and changes in orderlies performing treatments.

SCOPE OF THE PROBLEM

Unfortunately the problem was soon found to be less simple, because it is necessary to take into account the natural history of the disease. The majority of body infections in Europeans in Malaya are *Trichophyton mentagrophytes* infections. A research team working in Malaya (1947-8) found *T. mentagrophytes* in 54 per cent of 1,700 B.O.R.s examined, but it is my opinion that this does not give altogether a true picture of the situation. *T. mentagrophytes* is responsible for an even higher proportion of general body infections, while *Epidermophyton floccosum* (incidence 33 per cent) tends to remain localized. *T. mentagrophytes* also is responsible for an infection of limited duration: there is a great tendency towards the development of "reactions" to this fungus, from a mild follicular reaction to a gross "Kerion" type of reaction, and this in itself eliminates the fungus. It was noticed with some concern, after examination of the first 30 or 40 cases that calamine lotion

was frequently more effective than the various fungicides used. From this moment the only cases accepted for the survey were cases of early infection (within three days), uncomplicated, and untreated tinea. This limitation was a handicap in that such cases were comparatively hard to find. The majority of cases reaching hospital were either treated, or complicated by the development of either a pustular or an eczematous reaction, or outside the three-day limit.

This present paper then attempts to describe the result of comparative treatment with various fungicides on approximately 80 cases in which the acceptable criteria were fulfilled. These cases have been treated over a period of nearly three years, and during this time considerable experience has been gained in the treatment of all types of tinea. There are certain aspects of treatment which will be described in more detail. Looking back, it is now my considered opinion that, as in most common dermatological conditions, it is impossible to lay down hard and fast rules as to ideal therapy. Each case is a separate and individual problem, and results steadily improve as experience accumulates.

THE MATERIALS USED

The fungicides used in this survey consisted of various concentrations of Chrysarobin made up in Lassar's paste; Castellani's paint; various Salicylic acid-Benzoic acid formulæ; Phenyl Mercuric Nitrate/Carbowax ointment and Salicylanilide/Carbowax ointment (supplied by Imperial Chemical (Pharmaceuticals) Ltd.); Compound G.4;—2,2 Dihydroxy—5,5 dichloro diphenyl methane (supplied by Givaudan-Delawanna Inc.) made up in various ointment and emulsion bases; Penotrane Cream (supplied by Harper, Gillfillian & Co. of Malaya on behalf of Ward, Blenkinsop & Co. Ltd.) which is a 0.1 per cent phenyl mercuric complex of dinaphthyl methane disulphonic acid, containing 0.04 per cent w/w of Mercury; Tineafax ointment and powder (supplied by Burroughs Wellcome & Co.); and Desenex ointment and powder (supplied by Wallace & Tiernan Products). The last two preparations owe their fungicidal activity mainly to their undecylenate content. Tineafax in addition contains small amounts of phenyl mercuric acetate.

There have been many recent references in literature as to the value of the higher fatty acids in anti-fungal therapy. It has been pointed out that they have low irritating and sensitizing properties. (Kidmont, 1946, Shapiro and Rothman, 1945). Sulzberger and Kanof (1946) found that undecylenic powder is the most effective, practical, and acceptable of the agents investigated for use in the prophylaxis of fungus infections of the feet. Bushby and Stewart (1949) were impressed by the importance of the base in which the fungicides are incorporated. I will say now that after treating comparatively 6 cases with Tineafax and Desenex I was unable to detect any difference in the rate of progress with these two useful fungicides, and subsequently I did not discriminate between them.

Chrysarobin, made up in Lassar's paste, was found to be the most effective of fungicides. After experimenting with various concentrations, 2 per cent appeared to be optimum, causing few reactions if carefully used. The disadvantages of this fungicide are that it stains the clothing, and that being a crude drug the content of active substances may vary slightly. These disadvantages did not seem important in practice, and I still have a personal preference for chrysarobin, as compared to dithranol ($\frac{1}{2}$ or 1 per cent) which is not backed by sufficient statistical evidence. I found chrysarobin the most effective single remedy, and continued to use it.



THE CASES

It was soon noted that body tinea tended to develop soon after arrival in the tropics. In a series of 64 consecutive cases 60 developed their body infection inside the first four months after their arrival. Of these 57 developed the infection between two and a half and three and a half months after arrival. I myself contracted a "crutch" infection some two and a half months after arrival, together with an exacerbation of a long-standing, very mild, fluctuating interdigital foot infection. Following treatment my feet have remained perfectly free from infection. It was this which impressed upon me the probability discussed elsewhere (Greenwood, 1950) that all these *Trichophyton mentagraphytes* infections originate between the toes of the European, a variation in fungus type from *Trichophyton interdigitale* probably harboured harmlessly for many years. This tendency of *Trichophyton gypseum* towards the production of variants has been noted by, among others, Lewis and Hopper (1948), Emmons *et al.* (1945) and Epstein (1938); but in Malaya it assumes a special significance. Climatic conditions equally encourage the spread of *Epidermophyton floccosum* from the toes to the body. Both these fungi are uncommon in the indigenous population. It is perhaps of interest that patients arriving from the Middle East also developed their body tinea after the same time interval. I stress this as illustrating that my remarks are pertinent only with reference to Malaya where conditions of temperature and humidity favour the growth of fungus. Different conditions may well obtain in other tropical and sub-tropical areas. A treatment of proved efficacy in U.K. is not necessarily advisable in the tropics.

For these reasons I have treated all cases of tinea (except those selected for comparative tests on the feet, or those showing eczematous features on the feet) with a routine to the toes consisting of twice daily painting with the following paint:

Brilliant green	...	...	...	1
Hydrarg. perchlor.	...	...	...	0.1
Spirit	...	...	...	70
Water	...	...	...	ad 100

and twice daily application of a simple dusting powder. The paint was selected in preference to others in that the distinctive colour ensures that treatment is

carried out, while the paint itself is non-keratolytic and does not cause eczematization.

RESULTS IN THE GROUP OF CASES

Examination of the final results of the experiment set out in table form may perhaps be misleading in that the bald statement that the patient responded better to Fungicide A than Fungicide B often gives little idea of the course and progress of the disease. I propose therefore to make my own judgment on the relative efficacy of the fungicides used, and present illustrative figures and cases.

Chrysarobin was found to be the most effective single fungicide. Compared with compound G.4., in 20 cases of general body infection the response was better in 15 cases, worse in 1 case, and equivalent in 4 cases. There were direct irritant reactions to chrysarobin, particularly in the "crutch," but if the patient was watched, and treatment withheld temporarily to reacting areas, the results were good; Compound G.4., quite an effective fungicide, produced too many reactions, particularly in the "crutch" or at the site of excoriations.

Case 2.—Equivalent patches on abdomen. After four days patches treated with chrysarobin appeared clear; those treated with G.4. showed erythema and vesiculation, and subsequently required further treatment with another fungicide.

Case 31.—Bilateral tinea of legs. After thirteen days patches treated with chrysarobin were apparently clear; there was a marked erythematous and vesicular reaction to G.4. at the site of an abrasion. Other patches were still active.

Compound G.4. was incorporated either in a vaseline ointment base, or in eucerin emulsion base. This variation in base did not seem to affect results in any way.

Undecylenates, by virtue of their non-irritating properties, were useful. As fungicides for general use they proved lacking in "potency," but they were of great value in special cases. Compared with chrysarobin in 15 cases of general body infection, the response was better with undecylenates in 2 cases, worse in 7 cases, and equivalent in 6 cases. Compared with G.4. the response with undecylenates in 13 cases was better in 11 cases, and equivalent in 2 cases.

Case 8.—A seborrhœic individual with general tinea, and a hyperhidrotic, irritable skin, initially treated with G.4. and chrysarobin to the two halves of his body. After eight days both sides were erythematous, and calamine was substituted. Relapse on the chrysarobin side was treated with G.4. and there was a further reaction (twenty-first day). On the twenty-seventh day it was considered that both chrysarobin and G.4. were causing too much local irritation; all patches were active, and Castellani's paint was substituted. All patches appeared clear by the thirty-sixth day, but were relapsing on the forty-second day. At this point undecylenates were started, and there was a steady but slow improvement until final cure.

Case 48.—Generalized tinea with a long history of treatment and relapse—*E. floccosum* cultured. Chrysarobin to right side; undecylenates to left.

Thirteenth day: Right clear. Left improving, but active.

Twenty-fifth day: Left still active. Substitute chrysarobin.

Thirtieth day: All clear.

Follow up over nine months. No relapse.

Phenyl mercuric salts were found to have a good fungicidal effect, but there was a tendency to local reaction. I had the same impression of salicylanilide, although limited supplies made it impossible for me to test it as fully as I would have wished. No sensitization phenomenon were observed in 6 cases treated with penotrane cream. This is too small a number to be of significance, but the compound does appear to be an effective fungicide inside the limits imposed by the emulsion base in which it is prepared.

Case 43.—Generalized *E. floccosum*. Reaction to salicylanilide after eight days. Left side with chrysarobin. Substitute chrysarobin to right side when reaction has settled.

Fourteenth day: Both sides clear.

Case 46.—"Crutch" only. Treated with phenyl mercuric nitrate and undecylenates. After ten days both sides apparently clear, but skin looking "soggy" and irritable. Cleared with 1/1000 gentian violet and powder.

Case 54.—Generalized, eczematous and "weeping." Castellani's paint and penotrane (used with some trepidation) caused an equivalent improvement, and clearing in fourteen days.

Case 55.—Crutch and legs. Some eczematization. Penotrane and undecylenates caused an equivalent improvement and clearing in ten days.

The base in which fungicides are incorporated is obviously of some importance. Emulsion bases, useful in temperate climates, tend too easily to be washed away. Paraffin-starch bases are better, but may be irritating when applied to sweating areas such as the "crutch." The chief difficulty is to find an effective fungicide for use in troops on active operations, where a general infection can spread with great rapidity. In this connexion I must acknowledge a suggestion made by Capt. ——— R.A.M.C., who as an R.M.O. devised a system of treatment for early and uncomplicated cases which I also found more effective in promoting rapid cure than any other system I have tried.

All lesions (except toes) are painted twice daily first with a paint consisting of 10 per cent salicylic acid and 10 per cent benzoic acid in liquor iodi mitis, and then with Castellani's paint.

This somewhat determined treatment caused rapid resolution of the patches with desquamation. It was used under close supervision for not more than three or four days, and 2 per cent chrysarobin in Lassar's paste was applied twice daily subsequently until lesions were apparently clear.

Case 52.—Generalized early tinea. Left: New routine. Right: Undecylenates.

Eighth day: Left clear; right spreading. Substitute new routine to right.

Sixteenth day: All clear. Patient remained at work.

The treatment of the toes is a special problem, and that described previously in this paper is probably the most effective and the least likely to produce eczematization. Here again I am speaking for Malaya. The surprising tendency in Malaya is for interdigital infections to die out with the development of body tinea. The feet do not usually cause trouble except soon after arrival. PROVIDED eczematization is avoided. Other treatments tried included one devised by Dr. T. T. Patterson, of Cambridge, which consisted essentially of brilliant green paint. Subjectively most patients preferred the simple dusting powder. That

was an effective form of treatment which showed no advantages over the former, but had the one disadvantage that the iodoform powder did cause occasional reactions.

Undecylenate powders tended to cause interdigital maceration; they were better if used in conjunction with a brilliant green or gentian violet and spirit paint. That which I used as a routine consisted of equal parts of boric acid, zinc oxide, starch, and talc. The Army issue foot dusting powder was also effective.

SPECIAL PROBLEMS

(1) Kerion

The chief feature of *T. mentagrophytes* which causes difficulty is the tendency of the body to react violently to it and produce deep indurated pustular lesions. This reaction involves the skin and hair of the beard area (Hypogenetic sycosis); the scalp (kerion celsi); and the body (agminate folliculitis). These are merely names for the same process, a reaction (kerion) to this trichophyton. Staphylococcal contamination usually occurs, and large cold abscesses may develop on the neck and in the "crutch," which may rupture leaving multiple superficial sinuses, but which usually resolve. The important fact is that from the moment of the development of such a reaction, fungicides are contra-indicated. It is common for kerion, or an eczematized tinea, to develop under the "Jungle Boot" during jungle patrols. This is a spread from the toes. With wide kerion formation there may be constitutional upset and loss of weight. Sometimes there is considerable œdema of the legs.

The treatment is essentially "Rest" and "Heat." The latter is best applied by infra-red radiation. Antibiotic therapy (including sulphonamides) may be given to contend with secondary sepsis. Nursing is important.

Case History.—Sjt. B., aged 27.

This patient developed a general tinea while on jungle operations. Kerion formation occurred in all lesions and he was treated in various hospitals in Malaya before being transferred in despair to Singapore. Rings of residual folliculitis were scattered over the body, but had almost settled. On the face were some indurated discharging areas scarcely visible under three weeks' growth of beard and considerable encrustations. He had lost weight, and could not walk unaided. We removed his beard and cleaned him up; gave him high protein diet; general ultra-violet radiation; local infra-red, and eusol packs to the face. He was also given hot baths and exercises. After seven days he was perfectly fit except for a few residual indurated areas on the face, and he stated that more had been done for him in two days at Singapore than in the three weeks previously. In fact all we had done was to restore his morale. *He was already cured on arrival, but this fact had escaped notice.*

Some of these face kerions are very severe; one may expect a reaction to develop in a heavily bearded man; treatment sometimes seems to be provocative, and probably undecylenates should be used on the face in preference to other fungicides in such individuals. When kerion develops, I repeat, fungicides are contra-indicated.

(2) *Eczema of the Feet*

I have discussed this problem previously (Greenwood, 1949) and still have no quarrel with what I wrote on the subject nearly two years ago. The bullous (vesicular) dermatophytide does occur, usually on the sole primarily, and will settle with non-keratolytic treatment to the toes and palliative local remedies, i.e. rest and eusol dressing. Eczematous patches are not uncommon on the toes, sole and heel, and must not be treated with fungicides. Usually vesicular eruptions of the sole are NOT "*directly*" due to *tinea*. They may be; in which case hyphæ can readily be demonstrated microscopically. The chronic eczematous patches will ordinarily respond well to a protective tar paste application.

PROPHYLAXIS

If these infections originate between the toes, as I am convinced they do, then, if one can ensure a normal toe cleft, body *tinea* is not likely to develop. This is not just a question of routine painting of toes, although such a measure might help. It is more a matter of unit discipline. If the feet of every man in every unit were to be inspected every day by an officer, and ANY ABNORMALITY reported to the unit M.O., the incidence of body *tinea* should be reduced four-fold in a comparatively short time. This may be a bold assertion; there is nevertheless some evidence. The recent experiment on incidence of fungus disease in a Guards unit in Malaya proved abortive, but the earliest findings suggested that the relative enthusiasm and co-operation of the Companies themselves was a large factor in reducing the incidence; the recent introduction of steam laundering for troops in Hong Kong (to eradicate the "Dhobie Itch") has resulted in a slight increase in incidence of *tinea*, too small to be significant.

Some other measures could be taken which are practical:

(1) Routine painting of all toe clefts of all troops with the brilliant green-hydrarg, perchlor. paint daily during the journey out on Troopships from U.K.

(2) Routine use of undecylenate dusting powder as a prophylactic.

Of these two measures I favour the first as being practical, and impossible for the soldier to avoid. But most important, I am sure, is the daily inspection of feet, which should be organized in the same thorough manner as was the giving of prophylactic antimalarial drugs during the Burma campaign.

SUMMARY

An assessment of the relative value of various fungicides used in Malaya is presented. Chrysarobin was found to be the most effective single fungicide, although undecylenates are of great value in special cases. The treatment of complications of fungus infection is discussed, and some suggestions on prophylaxis put forward.

I am indebted to: Brig. R. Murphy, C.B.E., D.M.S., FARELF. and Col. J. H. Anderson, O.C., B.M.H., Singapore, for permission to forward this paper

for publication; the firms previously enumerated for their generous supplies of fungicides; Brig. Boyd., O.B.E., M.D., of the Wellcome laboratories, and Col. K. McNeill, Adviser in Dermatology, for their assistance in the supply of drugs; Dr. H. Haber, St. John's Hospital, for his advice in early days when the problem of tinea seemed insuperable; Capts. F. R. D. Minett and M. H. F. Coigley, R.A.M.C., and the late Capt. G. D. Powell, R.A.M.C., for their assistance during stages of the assessment.

REFERENCES

- BUSHBY, S. R. M., and STEWART, S. M. (1949) *B. J. Derm. Syph.*, **61**, 315.
EMMONS, C. W., and HOLLAENDER, A. (1945) *Arch. Derm. Syph.*, **52**, 257.
EPSTEIN, S. (1938) *J. Invest. Dermatol.*, **1**, 141.
GREENWOOD, K. (1949) *J.R.A.M.C.*, p. 284, Jun.; (1950) *Proc. Alum. Assoc. Kg. Ed. Coll. Med.* (Singapore), **3**, **4**, 316.
KIDMENT, P. D. C. (1946) *Practitioner*, **160**, 358.
LEWIS, C. M., and HOPPER, M. E., Introduction to Medical Mycology. 3rd Ed., p. 302.
SHAPIRO, A. L., and ROTHMAN, S. (1945) *Arch. Derm. Syph.*, **52**, 166.
SULZBERGER, M. B., and KANOF, A. (1946) *U.S. Nav. Med. Bull.*, **46**, 822.
W.O. Report on Skin Disease FARELF, 1947-8.
-

INTRODUCTION TO THE FIELD TRAINING SCHOOL ROYAL ARMY MEDICAL CORPS

BY
ANON

For a long time it had been apparent that the R.A.M.C. needed a School at which Officers and Senior N.C.O.s of the Corps could be taught medical organization and tactics. In this respect it was an oft-repeated fact that unlike practically every other Corps in the Army the role of the R.A.M.C. in war had little or no counterpart in peace and that medical officers were rarely allowed, through pressure of work, to attend courses which would have better equipped them for their role in the R.A.M.C. in war.

The need for such a School therefore was considerable and its formation was given serious consideration at the time of the Army Medical Directorate Committee on the Post-War Field Medical Organisation which, under the Chairmanship of Lieutenant-General Sir Alexander Hood, published its report in January 1947.

Paragraph 66 of the report states:

"The Committee has recommended the establishment of the Royal Army Medical Field and Administration Training School. Before the War few facilities existed for the Field Medical Training of officers and other ranks and the lack of such training was seriously felt at the beginning of the war. Apart from training there was no central organisation for testing and developing new tactics, vehicles and equipment. Senior Administrative Officers of formations had to work out their own salvation and learn by experience in battle. For these reasons a Field Administration Training School is considered essential for an efficient Field Force Medical Service and the training organisations should provide for this. . . ."

On June 1, 1949, therefore the ideas and recommendations of this Committee materialised in the form of the Field Training School, Royal Army Medical Corps.

In the process of forming a School it is necessary to lay down within clearly defined lines what the Charter of the School will be. The Charter stated therefore that the School was "to run courses on medical organization and tactics and also to carry out research and user trials on equipment for the medical services."

The establishment of the School provided for a Commandant of Lieutenant-Colonel rank, two Majors and one Captain as Instructors; a Warrant Officer Class II and a Serjeant as Assistant Instructors, a small clerical staff of a Serjeant and five O.R.s and in addition model makers, a demonstration team and seven R.A.S.C. drivers for the vehicles included in the establishment. An overall total of four officers and thirty other ranks.

The problems and difficulties which presented themselves in the initial

build up of the School were considerable. No Engineer work services were permitted then or subsequently and no initial training grant was forthcoming for the purchase of essential training equipment and aids. The first six months were therefore times of improvisation and to a very large degree that condition still obtains. However these problems and difficulties were not insurmountable and the School was ready to receive its first course in August 1949.

It is opportune now to give a broad outline of the subjects taught and the courses held at the School. R.A.M.C. Training Pamphlet No. 2 states that courses at the Field Training School include:

Cloth model exercises and demonstrations.

Exercise in packing and loading field equipment, administration of first aid, collection, carriage, classification and documentation of casualties and reconnaissance, siting, sign posting and deployment of field medical units.

Instruction in map reading and radio telephony, the writing of appreciations, orders, instructions and messages, the system of evacuation of casualties from front to base, medical organization and administration in the field and the duties of medical personnel and of field medical units in various types of war.

The pamphlet continues by enumerating the various courses held at the School:

All officers of the R.A.M.C. on first entry.

All regular officers of the R.A.M.C. after approximately seven years' service.

Regular officers of the R.A.M.C. selected for staff appointments in the Territorial Army and for the Staff College Courses.

Selected officers of the medical services of the Territorial Army.

Selected officers of the R.A.D.C. and Q.A.R.A.N.C.

Selected Warrant Officers and selected Non-Commissioned officers of the medical services, regular and territorial.

In addition to these courses the commitments of the School include the Director-General's annual medical exercise for senior officers of the Medical Services—two of which have so far been held at the School—"Medical Britannia" and "Medical Horatius." In addition an annual Staff College Medical Demonstration is held at the School showing the tactical layout of the medical services of the Infantry Division using shelters and tentage. Furthermore courses and demonstrations have been given to Territorial Army and University Training Corps Units.

It may be of interest to record the number of officers, warrant officers and N.C.O.s who have attended courses at the School from the time of the first course to date:

Lieutenants on First Appointment	...	...	...	...	...	937
Regular Officers of the R.A.M.C. (Senior Course)	...	...	...	...	...	62
Regular Officers of the R.A.M.C. selected for Staff Appointments in the T.A. and for the Staff College Course	...	...	...	...	...	26
Selected Officers, N.C.O.s and O.R.s of the Medical Services of the T.A.	...	...	...	...	...	338
Selected Officers of the R.A.D.C.	...	...	...	...	...	135
Selected Officers of the Q.A.R.A.N.C.	...	...	...	...	...	593

Selected W.O.s and N.C.O.s of the Medical Services	...	...	75
Royal Army Chaplains Department (Officers)	...	...	53
University Training Corps	...	...	39

The teaching at the School conforms with that laid down within the relevant training manuals but every effort has been made to retain a certain flexibility to enable suggestions from students and others to be incorporated into subsequent courses.

The style of teaching varies with the instructor but emphasis is placed on the advantage of visual aids and into each lecture a certain amount of demonstration is always introduced. This is either in the form of models or in demonstrations on the ground.

The course for lieutenants on first appointment is for one week and comes at the end of their six weeks' basic training. During the course organization of a Field Force is taught and the medical services are then superimposed upon it. Instruction in detail is given on the divisional medical units and their deployment and practice is given on this subject in the form of a T.E.W.T. which is conducted in two phases—the first on the ground—the students carrying out reconnaissance and evolve their solutions to the problems; the second on a model of the ground where they present their solutions and discuss their respective solutions.

Also in the course, opportunity is given for student officers to conduct their own lecturettes on subjects in which they have been instructed during the course.

Throughout all courses held at the School the emphasis is placed on syndicate discussions and syndicate solutions to a problem. This has been found to be particularly satisfactory and definitely produces results in the development of team spirit.

The Course for regular officers of the R.A.M.C. with approximately seven years' service (Senior Course) is held at the School during April and September. It precedes the Senior Course at the R.A.M. College, Millbank, and is of two weeks' duration. The first week deals in general terms with the organization of the Medical Services in the Field, and the second week is devoted largely to T.E.W.T.s at Brigade, Divisional and Corps level.

In conclusion mention should be made of the second aspect of the School's charter which is "research and user trials on equipment for the medical services." Approximately 30 user trials have been carried out on various types of equipment ranging from Snakebite Kits to Hospital Direction Flags and much interesting and valuable research has been carried out in connexion with the springing of ambulance cars, pack saddlery, stretcher appliances and shelters.

The future of the School is difficult to assess but those who have followed its development from the early days of its insignificant beginning to its present stature cannot but hope that it will not only continue to make its contribution to the Corps but also that its scope of activity and benefit will develop and enlarge.

PRELIMINARY COMMUNICATION ON THE INCIDENCE OF EPIDERMOPHYTOSIS IN ARMY RECRUITS

BY

Lieutenant A. J. DAVIES

Royal Army Medical Corps

AN investigation was started at the Army School of Health into the incidence of fungus infection in the feet of Army recruits.

One has here an opportunity of examining a large number of subjects giving a fair cross-section of the younger members of the population. The troops examined were from: The Basic Training Unit and Troops in Transit.

It was first necessary to decide on a type of classification showing the degree of severity of the condition, so that a more detailed summary could be produced, rather than just placing in "Infected" and "Non-infected" groups. The usual classification on clinical grounds—(1) Inter-triginous; (2) Vesicular; (3) Hyperkeratotic—was not thought to be adequate for our purpose and we decided to introduce a classification which would define the appearance and extent of the lesions.

The system adopted was:

(1) *Nil*.—No obvious signs of fungus infection, no cracking between the toes, or gross scaling. On microscopic examination of scrapings there was no evidence of the fungus. To date we have not used cultural methods.

(2) *Minimal*.—Here there was scaling and cracking between the toes, the skin having the appearance of blotting paper. The extent of the infection was confined to one, or at the most, two, interdigital spaces. It was noted that the fourth to fifth interdigital space was by far the commonest site. It was possible in a selection of cases to demonstrate the fungus microscopically, but again cultural methods were not used.

(3) *Moderate*.—There was cracking and scaling with sodden skin between all toes of both feet. In some of the cases the skin of the interdigital space was denuded and the patients complained of sore feet. One case had a moderate infection confined to one foot, the other foot being completely clear. The fungus was confirmed in the affected foot but not at any time in the other.

(4) *Severe*.—In this type the infected area was spreading up on the sole of the foot. The patients complained of itching and smarting and sometimes of the smell of their feet. The fungus was usually profuse microscopically, but,

however, in a few cases we were unable to show any fungus. Cultural methods will perhaps demonstrate it.

This classification although not absolutely ideal does permit of classification to degree of infection.

In order to get an idea of the background of each case, a small questionnaire was prepared asking civil occupation, previous history of foot trouble and any family history of athlete's foot. It will be noticed that it was decided not to ask frequency of bathing or of changing socks, as this would almost certainly introduce false figures. At the time of examination each person was asked if they suffered from excessively sweaty feet.

It can be seen that not only were we trying to show the incidence of fungus infection but trying to find the effect of occupation, if any, and of the degree of sweatiness of the feet.

In the first month 300 men were examined, of these 200 were recruits, and 100 transitees all of whom had been in the Army six to twelve months.

RESULTS

TABLE I.—SHOWING INCIDENCE OF FUNGUS INFECTION IN EACH GROUP

<i>No. examined</i>	<i>Nil</i>	<i>Minimal</i>	<i>Moderate</i>	<i>Severe</i>
300	183	79	25	13
100%	61%	26·33%	8·33%	4·33%

TABLE II.—SHOWING PERCENTAGE OF COMPLAINTS OF SWEATY FEET IN EACH GRADE OF FOOT INFECTION

<i>Classification</i>	<i>Nil</i>	<i>Minimal</i>	<i>Moderate</i>	<i>Severe</i>	<i>Total</i>
Number complaining of sweaty feet	51	35	19	11	116
As an approximate percentage of the total number complaining of sweaty feet	45	30	17	9	100
As an approximate percentage of the total number in each grade	27·7	44·3	76	84·6	38

TABLE III.—COMPARING THE INCIDENCE OF FUNGUS INFECTION IN RECRUITS AND TRANSITEES (SERVICE SIX TO TWELVE MONTHS)

<i>Recruits (Service 0)</i>					
<i>Grades</i>	<i>Nil</i>	<i>Minimal</i>	<i>Moderate</i>	<i>Severe</i>	<i>Total</i>
Number in each grade	133	46	15	6	200
Percentage in each grade	66½	23	7½	3	100
<i>Transitees (Service Six to Twelve Months)</i>					
<i>Grades</i>	<i>Nil</i>	<i>Minimal</i>	<i>Moderate</i>	<i>Severe</i>	<i>Total</i>
Number in each grade	44	34	10	7	100
Percentage in each grade	44	34	10	7	100

This result may be shown more satisfactorily in graphic form.

DIAGRAM I

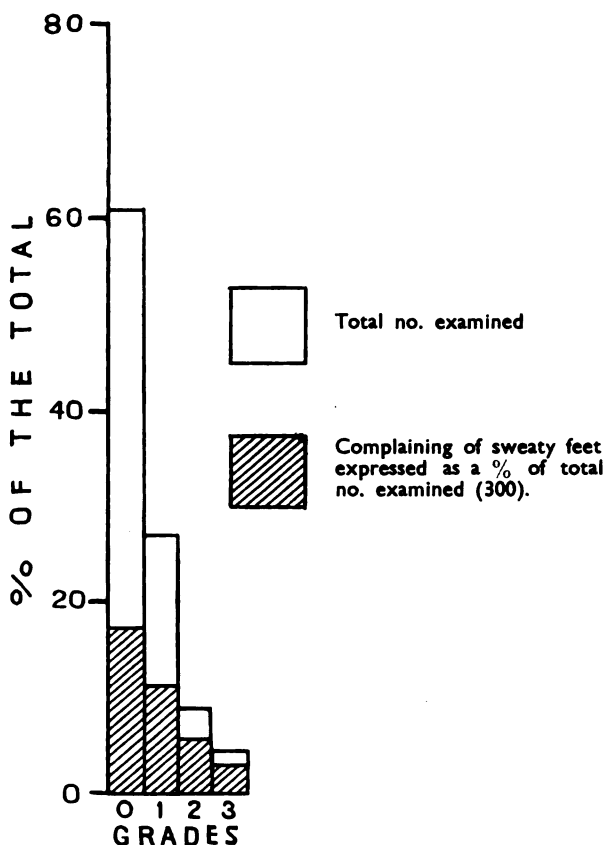


Diagram showing incidence of Fungus Infection in 300 people examined, also incidence of Sweaty Feet.

It was noticed on comparing the figures of the R.A.M.C. recruits with those of the R.A.P.C. (all of whom had served six to twelve months) that there is a slight difference in the percentage of infection.

It will be seen that a higher percentage in the transitees have infection, i.e. those who have served six to twelve months. Whether this is a real or apparent difference it is too early to decide, but many more cases will be examined and compared.

This may be represented graphically (*see* Diagram 2).

We are proposing to show that this is a real difference by examining recruits on entering the Army, and again ten weeks later at the end of their course.

DIAGRAM II

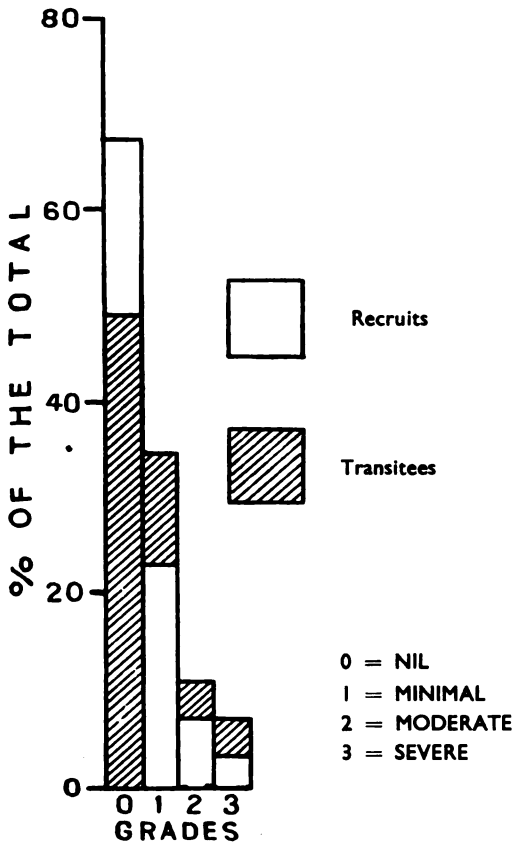


Diagram 2.—Comparing the Incidence of Fungus Infection in (1) Recruits. (2) Transitees after 6—12 months service.

In our next paper further figures will be collected showing the incidence of foot infection, and also endeavour to show the industrial and social distribution. Comparison of the various types of treatment will be outlined.

THE BRITISH ARMY HEALTH ORGANIZATION¹

BY

Lieut.-Colonel R. W. SCOTT

Royal Army Medical Corps²

RECENT years have seen a great widening of outlook in the struggle for the attainment of health. There has been a realization of the way in which the complicated interplay of environmental factors may affect health. Linked with this is the additional factor that the increased tempo of modern warfare, combined with the ever-growing complexity of weapons, equipment and materials demands a higher degree of mental and physical health than ever before. The continuance of the system of National Service has also had far-reaching effects; it imposes a special responsibility in that the health of the nation's youth at a most important stage in their lives is placed in the trust of the Armed Forces. The maintenance of health is one of the basic functions of the Army Medical Services as a whole and within the Medical Services it is the special province of the Army Health Organization.

RESPONSIBILITY

The prime responsibility for the health of the Army falls on higher commanders who are advised by their senior administrative medical officers who in turn receive technical advice from the army health officer on their staff. At unit level the responsibility falls on the unit commander. This aspect of the problem, the welding together of the traditional art of man-management and modern scientific methods of disease control constitutes the "health discipline" already discussed by Cantlie.³ The duties of the Army health personnel may therefore be classified primarily as advice, inspection, and research, with the special executive responsibilities in education and propaganda, in the control of infectious disease and in particular problems such as malaria control measures outside unit limits.

The responsibilities of the Army Health Organization were laid down in an Army Council Instruction published in 1948. They are: (1) Supervision in general of the environment of the soldier from the point of view of the

¹Reprinted from, and by kind permission of the Management of, the *United States Armed Forces Medical Journal*.

²Army Health Directorate, British War Office.

³Cantlie, N. (Sir): Health discipline. *U.S. Armed Forces Med. J.*, 1, 232-237, February 1950.

maintenance of his health; (2) the medical aspects of recruiting and categorization, diet and nutrition, work, training including physical training and recreation; (3) supervision of water and food supplies; (4) the medical aspects of shelter of all kinds including scales of accommodation, selection of camp and barrack sites, the layout and design of buildings, heating, lighting, and ventilation; (5) the medical aspects of clothing and equipment of the soldier and assistance in regard to personnel research into all such matters; (6) methods of disposal of waste matter of all kinds and the hygienic aspects of bathing, swimming, and laundry facilities; (7) disinfection and disinfestation; (8) industrial hygiene and occupational hazards throughout the Army; (9) preventive medicine in general and in particular the prevention of infectious diseases; (10) supervision of arrangements for hygienic training of all kinds; (11) the maintenance of statistics of disease incidence in all commands and a watch on the trends of disease; (12) supervision of the health of the school child at home and abroad as also of maternity and child welfare work throughout the Army; and (13) liaison with the other services and with the Ministry of Health or other civil organizations at home and abroad on important public health matters.

PERSONNEL

The Army Health Organization is administered by a Directorate of Army Health which is an integral part of the Army Medical Directorate at the War Office. The Director of Army Health, usually a major-general or a brigadier is chairman of the Army Health Advisory Committee which is composed of leading civilian authorities on public health, malariology, physiology, nutrition, statistics, etc. Their expert advice can be obtained on difficult problems. The department consists of a statistical section controlled by civilian statisticians which deals with Army medical statistics on a world-wide basis and a general section staffed by a lieutenant-colonel, who is Assistant Director of Army Health, and two majors, Deputy Assistant Directors of Army Health. At the headquarters of each command in the United Kingdom there is a Deputy Director of Army Health, a colonel and each military district has a Deputy Assistant Director of Army Health who is a major. Each command has a pool of non-commissioned officers qualified as "hygiene assistants" who are distributed to districts as required. Their duties are inspectorial and advisory.

The staff officers in the higher appointments are fully qualified specialists in Army health with considerable military experience and the appropriate civilian public-health qualifications. The officers in the junior appointments, less well qualified, are classified as graded specialists. Hygiene assistants may reach officer status and be commissioned as hygiene officers (non-medical). They are employed as instructors in teaching establishments, as staff captains (hygiene or malaria) in the larger headquarters and in administrative appointments.

In overseas commands the organization is similar. The staff officers are identical. The other ranks in each command are more numerous and have more executive duties than in commands in the United Kingdom. For adminis-

trative convenience they are normally grouped into units called hygiene companies or hygiene wings which are commanded by non-medical hygiene officers.

EDUCATION

All personnel of the Medical Services have their part to play in health education and particularly those of the Army Health Organization. The main educational activities are centred on three establishments. The first is the Army Health Department of the Royal Army Medical College in London. This has a staff consisting of a professor of Army health (colonel), a reader (lieutenant-colonel), a lecturer (major), and an analytical chemist (civilian). This department is concerned with research and with the training of medical officers in the principles of Army health. The training is done in three phases. the short introductory course given to national service medical officers on entry, the long senior course given to regular officers at about their tenth year of service, and the specialized instruction for graded specialists in Army health in order that they may obtain their civilian qualifications and become full specialists.

Second, there is the Army School of Health which is directed to the more practical aspects of instruction in Army health. It is commanded by a colonel. The teaching staff includes a chief instructor, lieutenant-colonel, two majors (specialists in Army health), two hygiene officers (non-medical), and a number of noncommissioned officers. Courses are provided for medical officers on first joining and for the other rank personnel of the Royal Army Medical Corps in order that they may qualify as hygiene assistants. The bulk of the work at the school is, however, the instruction of regimental personnel. Regular courses are held for instructors in health at primary training centres, for regimental sanitary-duty men, for water-duty men, and for senior and junior regimental officers. Special instruction is provided for students at the Staff College and for cadets from Sandhurst. Courses are also given to officers and men of the Territorial Army and members of the Cadet Forces. The school carries out research into field apparatus, disinfectants, insecticides, water-purification methods, and other subjects related to practical hygiene. A mobile Army health team, which is based at the school, tours the United Kingdom giving demonstrations and lectures and showing films to units of both the Regular and Territorial Armies. Certain civilian organizations make use of the school including the Civil Defence Staff College and the London School of Hygiene and Tropical Medicine. Arrangements are also being made for cadets of the Colonial Administrative Service to attend for instruction before taking up their first overseas appointments.

The third institution is the Far East School of Hygiene at Singapore, which, although small, gives courses similar to those at the Army School of Health, for British personnel serving in the Far East, for Gurkha troops, and for locally enlisted troops. In other overseas commands local demonstration grounds are

set up by the hygiene companies and short courses of instruction are given on problems appropriate to the command.

The pattern of health education which it is hoped to achieve is that the recruit will receive lectures on elementary hygiene, particularly personal hygiene, at his training centre. The instruction will be reinforced by films on communal and personal hygiene and related subjects prepared by the Army Health Organization. The trained soldier will receive a set programme of lectures from his medical officer each year. It is hoped soon that the corporal will receive a short course of instruction at the Army School of Health before he becomes a serjeant. The young regimental officer will receive a course at the school because Army health questions are included in his promotion examinations. The senior officer will be able to attend refresher courses. It is hoped also that captains will receive a short course of instruction before promotion to major.

In addition special arrangements are made for lectures and films to be given to troops while on troopships. The textbooks on the subject have been rewritten. A "Handbook of Army Health," an elementary publication for all arms, is in print and will appear shortly. A "Manual of Army Health," a technical work for Army health specialists, is being prepared, and a small pamphlet entitled "Your Health and You," which is to be handed to each soldier when going abroad, is in print. A similar publication for families going overseas is in preparation.

MEDICAL CLASSIFICATION AND PERSONNEL SELECTION

World War II demonstrated the importance of achieving the maximum use of man-power both in the Services and on the home front. Put briefly, the problem is to get the man into the employment for which his physique, temperament, intelligence, aptitude, and training make him most suitable. Temperament, intelligence, aptitude, and training are covered by the personnel selection procedure which is organized by a special branch of the Adjutant-General's department. Personnel selection officers can readily refer soldiers to Army psychiatrists when this is thought to be advisable. As far as physique is concerned the Pulheems system of medical classification has been evolved. This important subject has already been covered by Campbell.¹ This system aims at the production of a medical standard for each soldier which is based on the correlation of his actual physical condition with the physical attributes required in his particular Army trade or employment.

RESEARCH

Research is carried out at the Royal Army Medical College and at the Army School of Health. In addition, more particularly for personnel research problems, a pool of physiologists is maintained who can be attached to Service

¹Campbell, A. E.: Assessment of physical fitness for service in the British Army. *U.S. Armed Forces Med. J.*, 1, 1527-1535, December 1950.

research institutions carrying out investigations which require the service of physiologists. Committees are in existence which link the Army Health Organization with the Medical Research Council and other civilian research bodies. Another committee links the Industrial Health Organization in the Services with the medical staff of the Factory Department of the Ministry of Labour.

ORGANIZATION IN WAR

The organization in war follows the same general principles as in time of peace. At all levels senior administrative medical officers have specialists in Army health on their staffs. An important feature of the organization in war is that in areas where there are special health hazards the divisional staff may be augmented to include a Deputy Assistant Adjutant-General, Health. This appointment is filled by an executive staff officer not a member of the Royal Army Medical Corps. His duty is to ensure that all personnel within the formation comply with orders relating to the maintenance of health. Forces in the field are provided with an appropriate quota of field hygiene sections commanded by nonmedical hygiene officers and field hygiene companies commanded by Army health specialists. Laboratory facilities are supplied by mobile hygiene laboratories. When the area of operations is malarious, malaria field and base laboratories are provided. These are commanded by Army health specialists and have a staff of malariologists and entomologists. Each can set up a central entomologic laboratory and provide two or three malaria survey teams. A malaria control company which is responsible for the control of local labour recruited for antimalarial work may also be provided.

CONCLUSIONS

The approach to health in the British Army is directed toward the attainment of positive health in the widest sense of the phrase. The campaign to achieve this end is based on (1) intensive education at all levels; (2) health discipline to enforce measures essential to health; and (3) the provision of a corps of efficient, fully qualified technical personnel continually striving to raise standards and always alert to ascertain new problems and suggest the means of dealing with them.

A CASE OF MANDIBULAR PROGNATHISM CORRECTED BY KOSTECKA'S OPERATION

BY

**D. T. H. PAINE, F.R.C.S., Major D. V. TAYLOR, F.D.S., H.D.D., R.A.D.C.,
Captain P. FELIX, F.D.S., R.A.D.C.**

Relevant History.—Ptc. J. A. F., aged 21, was first seen at B.M.H. Wuppertal where he attended for dental treatment and it was noticed that his mandible was disproportionately large in comparison to the other facial bones. He stated that his lower jaw had become progressively enlarged from the time of adolescence, but had remained as now seen (figs. A1, B1, C1) for some years. He now finds it difficult to eat Army rations and is acutely conscious of his appearance.

Family history reveals that mother and brother are normal but that father has similar appearance.



FIG. A1

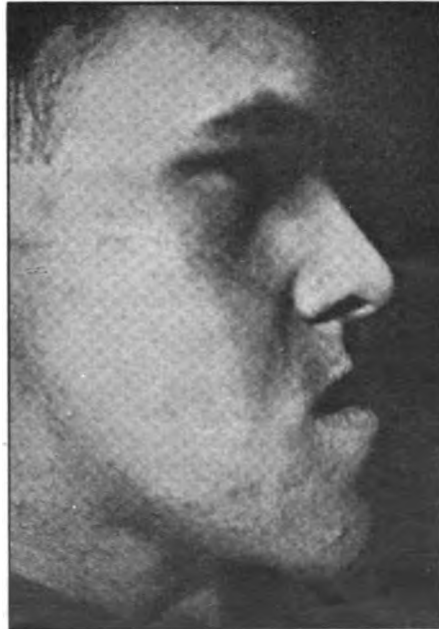


FIG. B1.

FIG. A1.—Position of teeth in occlusion pre-operatively.

FIG. B1.—Profile pre-operatively.

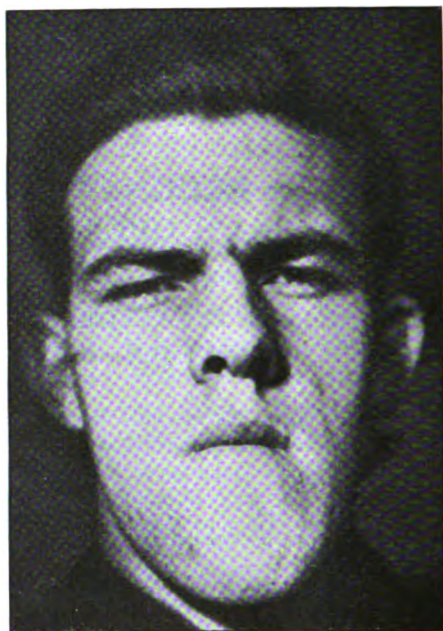


FIG. C1.—Full-face pre-operatively.

On Examination.—A tall thin young man, rather poorly nourished, normally proportioned except for a severely prognathous mandible. Instead of the normal $\frac{1}{8}$ inch "overjet" there was a space of nearly 1 inch antero-posteriorly between the incisal edges of upper and lower incisor teeth when closed together (fig. A1). The occlusion was grossly deranged and this factor had no doubt contributed to the severe paradontal disease and extensive caries which was revealed on examination of the teeth and gums. There was no signs of soft tissue thickening of the face, or overgrowth of the extremities.

Radiographic Examination.—Showed no abnormality in bony structure, but of course gross enlargement of the mandible (fig. B1).

Consideration.—As this patient earnestly requested any treatment possible to improve his condition, it was decided to perform Kostecka's operation, preceded by necessary conservative and paradontal treatment to the teeth. This operation consists of a bilateral section of the ascending rami of the mandible at such a level and plane that injury to the inferior dental nerves and arteries are avoided. The body of the mandible is then moved posteriorly to a predetermined position, immobilized, and bony union allowed to take place.

Treatment.—(a) *Preliminary:* All carious cavities were treated and the gingival condition improved as much as possible by appropriate measures.

(b) *Pre-operative:* Upper and lower impressions were taken and dental cap splints constructed on the models so obtained. With the splints in position the models were then placed in a position of normal occlusion and the locking plates, already soldered on to the splints of the buccal surfaces in $\frac{54}{54}$ regions, were localized and locking plates constructed. The splints were then cemented on to the teeth.

(c) *Operation 25.10.50:* *Anæsthetic:* Pentothal induction followed by oxygen-cyclopropane administered by means of an endo-tracheal tube.—Captain R. A. Millar, R.A.M.C.



FIG. D.—Splints in position after operation showing locking device in $\begin{smallmatrix} 54/45 \\ 54/45 \end{smallmatrix}$ regions.

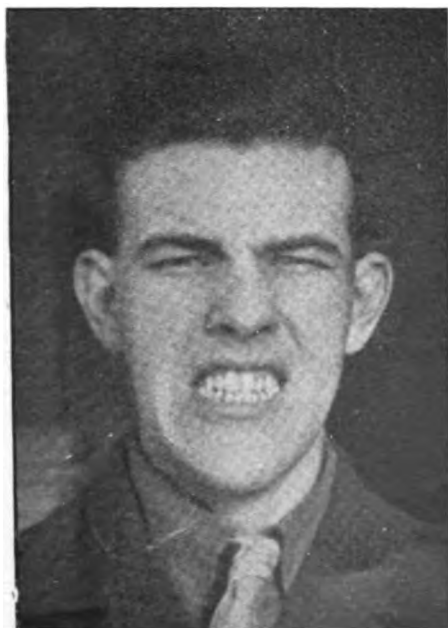


FIG. A2.

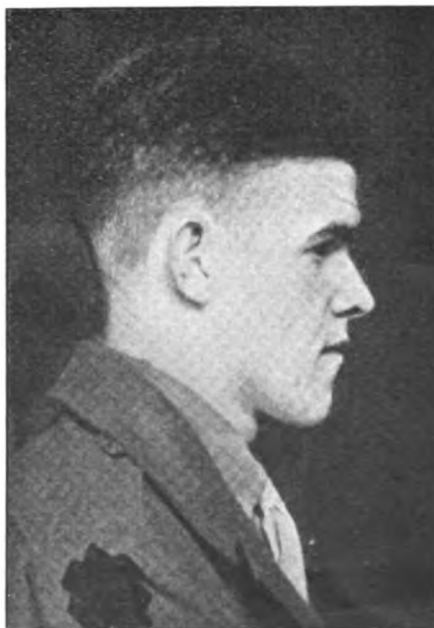


FIG. B2.

FIG. A2.—Position of teeth in occlusion post-operatively.

FIG. B2.—Profile post-operatively.

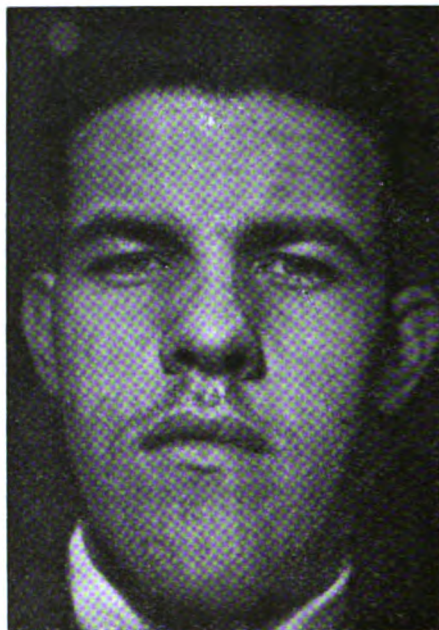
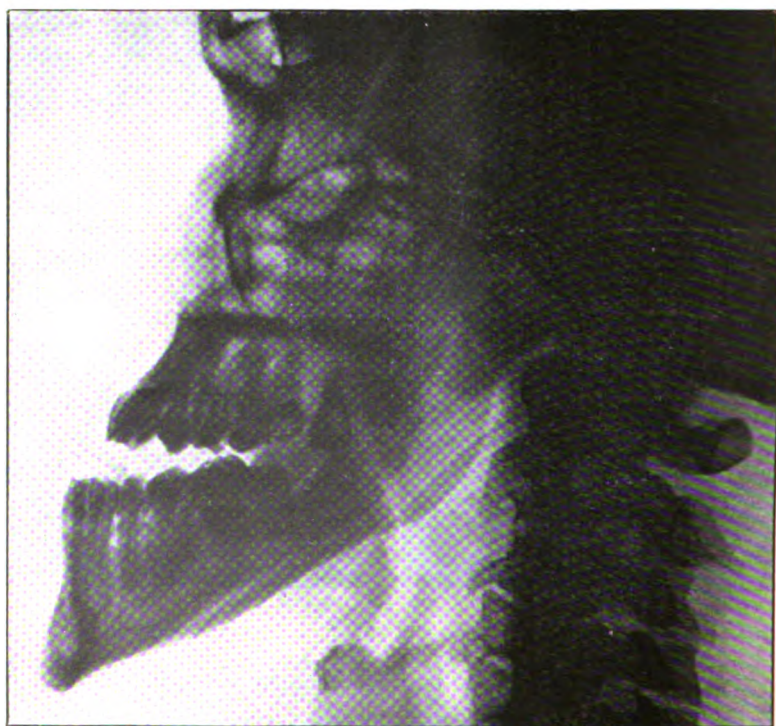


FIG. C2.—Full-face post-operatively.



R1, B1.—Lateral view pre-operatively.



R2, B2.—Lateral view post-operatively.



R3, A2.—Postero-anterior view post-operatively.

To determine the plane of section, a Kingsley splint was inserted into the mouth, with the external arms carefully adjusted to follow the occlusal plane and the teeth then closed on the intra-oral section. A line was marked on the skin, parallel to the external arm, and higher up over the ascending ramus at a level judged to be above the lingual but below the lowest point of the sigmoid notch. Available radiographs and manual palpation were employed to assist in the determination of this level. The division of the bones was carried out with a Gigli saw inserted by means of a curved seeker through two small external incisions. During insertion, the seeker was maintained in direct contact with the internal surface of the bone until it emerged through the second skin incision. The main segment of the mandible so mobilized was then pushed backwards until the teeth came into the new pre-arranged position of normal occlusion and were fixed thus by application of the locking plates on the dental splints. Penicillin cover was maintained pre- and post-operatively.

Result.—Smooth post-operative recovery, and no evidence of nerve or vascular trauma. Radiographs showed good apposition of bone ends at lines of section.

Fixation was maintained for eleven weeks, during which the patient actually gained a few lb. in weight. Release of the locking plates then revealed firm bony union, and all mandibular movements were normal after a few days, and normal food could be taken. Splints were removed and the bite was adjusted by "spot-grinding" teeth where necessary to improve the new occlusion. The patient was discharged and re-examined in five weeks when the condition was found to be unchanged. He was then referred for completion of dental treatment to his Unit Dental Officer.

It was noticed that since discharge from hospital a great improvement in mental outlook had taken place. The improvement in appearance was accompanied by a distinct change in manner and bearing.

SUMMARY

(1) A case of mandibular prognathism treated by Kostecka's operation is described.

(2) Special attention is drawn to the valuable psychological effect, which can be achieved by a successful operation of this type.

Photographs and radiographs presented herewith demonstrate the condition before and after operation and show the lines of section.

ACKNOWLEDGMENTS

Thanks are due to Lieut.-Colonel W. F. L. Fava, R.A.M.C., Officer Commanding B.M.H. Iserlohn, for permission to submit this case for publication.

THE HONORARY PHYSICIANS AND SURGEONS TO THE SOVEREIGN

BY

Major J. B. NEAL
Royal Army Medical Corps

THE institution of appointments as Honorary Physician and Honorary Surgeon to the Sovereign was the culmination of some fifty years' endeavour to secure for medical officers some reward for distinguished service, and it may be permissible to review the stages by which this was achieved.

The distinctions generally available to combatant officers at the beginning of the nineteenth century were three—Mention in a Commander-in-Chief's despatches, published in the *London Gazette*; for field officers, appointments to the Order of the Bath; and nominations to the Royal Household. Each of these was successively secured for medical officers.

It is well known that the first mention in a public despatch of the services of medical officers was made by the Duke of Wellington after the siege of Badajoz (April 1812), at the importunity of his Principal Medical Officer, Dr. (later Sir) James McGrigor. There had previously been instances of surgeons being brought to notice in the reports of commanders of lower formations, an example being the mention by the Commander of the 3rd Cavalry Brigade of the conduct of Surgeon Lyss at the battle of Laswarree (November 1, 1803). But G. J. Guthrie, lecturing at Westminster Hospital on December 2, 1837, says of the battle of Albuhera (May 16, 1811): "The General and Staff Officers obtained stars or ribbons; the officers commanding regiments, whether in or out of action, received medals, many of them were promoted, the regiments inscribed Albuhera on their colours in letters of gold . . . the poor doctors alone got nothing"¹; and as late as 1856, Dr. (later Sir) Andrew Smith, Director-General of the Army and Ordnance Medical Department, complaining to the Stafford Committee² of the paucity of honours conferred on officers of the Medical Department, said it had "never been the practice to introduce medical officers into despatches. . . . It was a novelty in the Crimea." He added that as so many surgeons had been brought favourably to the notice of the Commander-in-Chief, but never mentioned in the official despatches, that he had

¹Clinical lectures on Compound Fractures of the Extremities, etc. (the "Miscellaneous Lectures"). London: John Churchill, 1838, p. 14.

²Select Committee on the Medical Department (Army). Chairman, Augustus Stafford. Ordered by the House of Commons to be Printed. July 3, 1856.

obtained permission to secure some recognition of their services by writing laudatory notices for the *Lancet* and the *Medical Times*. The Crimean novelty, however, became established practice.

The second stage, of appointments to the Order of the Bath, was achieved in 1850, though it was only when several intended recipients expressed their intention of declining appointment to the civil division that it was established that for war services, medical officers should be eligible for the military division of the Order. The third, of honorary nomination to the Household, followed the Crimean War.

In August 1855, the surgeons serving with the Army in the East (i.e. the Crimea) had submitted to the Secretary of State for War a memorial detailing their grievances, in which they stated: "We rejoice that the war should have secured to our military brethren so many honours and rewards. We feel that a participation in similar advantages is but justly due to ourselves." This memorial was passed by Lord Panmure to Dr. Smith for his observations, which he expressed in a long memorandum of October 29, 1855, and in this is the first suggestion of the appointment of Honorary Physicians and Surgeons to the Queen. The relevant paragraph reads:

"A limited Number (say Six) of the most meritorious Officers of the Department to be styled *Honorary Physicians and Surgeons to Her Majesty*, say Three Physicians and Three Surgeons."

"Medical officers consider this would raise the status of the department, and give it an *éclat* in the eyes of the profession and the public which it does not at present possess, but which they consider it merits. As honorary awards are much desired and esteemed by the majority of men, I think one such as is proposed would operate advantageously if it could be consistently conferred. Precedents are not wanting."¹

The Director-General's Memorandum was appended to the proceedings of the Committee, which reported in its resolutions that it agreed with Dr. Smith's recommendations "as to leave of absence, honorary distinctions, funeral honours, special services and relative rank."

No action followed, but the suggestion was again put forward in evidence before the Herbert Commission of 1857-8.² Dr. (later Surgeon-General) G. S. Beatson, whose spurs and pouch plate are in the R.A.M.C. Headquarter officers' Mess, considered that the appointment of a certain number of honorary physicians and surgeons would be "very gratifying." He was supported by Mr. T. Alexander, C.B. (later Director-General, who is commemorated by the Alexander Prize), and by Mr. G. R. Dartnell, a retired Deputy Inspector-General of Hospitals, who favoured the suggestion, but thought the

¹Stafford Committee Report, 1856, p. 311.

²Royal Commission appointed to inquire into the Regulations affecting the Sanitary Condition of the Army, the Organization of Military Hospitals and the Treatment of the Sick and Wounded. Report presented to both Houses of Parliament by Command of Her Majesty 1858.

title should be "Surgeon Aide-de-Camp to the Queen," as "better implying a military medical officer." The Commission on this occasion specifically recommended "That a limited number of medical officers of distinguished merit be styled honorary physicians and surgeons to Your Majesty."¹

The outcome of this Commission was the Royal Warrant of October 1, 1858, article 26 of which laid down that "Six of the most meritorious Medical Officers of the Army shall be styled my Honorary Physicians and six my Honorary Surgeons," and the first twelve appointments were made dated August 16, 1859. But the distinguished merit thus recognized was in no way blazoned abroad: the officers wore no distinction of dress, they received no extra pay, they used no initials after their names. In the Monthly Army List, a nominal roll was printed in an inconspicuous and irrelevant position, while in the Annual List the names bore a marginal note "Hon. Phys. to H.M." or "Hon. Surg. to H.M." With this Her Majesty's Honorary Medical Officers had to be content until 1878.

Meanwhile, in 1865, an interesting suggestion was put forward by a junior officer, Assistant Surgeon H. Chalmers Miles, R.H.A., in a plan which he submitted to the Director-General for the formation of a Royal Medical Staff Corps. In his proposed regulations for this Corps, Miles provided additional pay of £100 a year for each Honorary Physician and Surgeon: he allowed any officer of relative field rank to be eligible for appointment, with the condition that on receiving any step of promotion, time-promotion to relative Lieutenant-Colonel alone excepted, a holder should be required to relinquish his appointment: lastly, he postulated a roster of officers below relative field rank who had been brought to notice for distinguished conduct, from which appointments as Q.H.P. and Q.H.S. might be made as they attained the necessary rank and vacancies occurred. (This was in marked contrast to the actual practice of appointing a considerable proportion of retired officers as Q.H.P. and Q.H.S.) Miles' plan was put in evidence to the Milne Committee,² but received no attention in its recommendations.

The first advance was made early in 1878, when the Queen approved a special sash to be worn by her honorary physicians and surgeons in place of the dress pouch-belt and pouch, and the pattern (No. 513) was sealed on April 12, 1878. The sash was of gold 2½ inches wide, with two black lines ¼ inch wide and ¾ inch apart, and a gold and black tassel 9 inches long (General Order 16 of 1885).

Later in the same year, the Thompson Committee³ recommended that the

¹Herbert Commission. Report, p. lxxx.

²Committee to inquire into the whole question of Rank, Pay and Position of Medical Officers of the Navy and Army (Chairman, Vice-Admiral Sir Alexander Milne, K.C.B.) ordered, by the House of Commons, to be Printed. August 10, 1866.

³Report of the Committee appointed by the Secretary of State to inquire into the causes which tend to prevent sufficient eligible candidates from coming forward for the Army Medical Department (Chairman, Sir Ralph Thompson). Presented to both Houses of Parliament by Command of Her Majesty. December 1878.

position of the honorary physicians and surgeons should be assimilated to that of the Queen's aides-de-camp, in that their names should be printed on the first page of the Army List; that they should be distinguished by the initials Q.H.P. and Q.H.S.; and that as aides-de-camp became, on appointment. Brevet-Colonels, so appointment as Honorary Physician or Surgeon should carry promotion to Deputy Surgeon-General, the officer being borne supernumerary in the rank until due for advancement in the normal course. "This last proposal represents a possible expense. We conclude, however, that the selection would be rarely exercised, and only for very distinguished service: while the advantage of bringing an able junior officer to high rank would be no small set-off. In considering this point, it is to be remembered that a Queen's aide-de-camp has, in that capacity, 10s. 5d. a day (£190 2s. 1d. a year) without being debarred from other staff pay; whereas the Honorary Physician and Surgeon has no extra pay as such."

Some of these recommendations were adopted; the initials were taken into use and shown in the Army List, in which the roll of Q.H.P.s and Q.H.S.s was placed immediately after that of the A.s.D.C., while a Royal Warrant of November 27, 1879, provided for supernumerary promotion to Deputy Surgeon-General. (Deputy Surgeons-General held relative rank as Colonel, and the present provision for Brevet Colonelcy dates from this time. The Thompson Committee's foreboding of the infrequent use of the concession was fully justified, for it was first exercised at the appointment of Lieutenant-Colonel R. S. F. Henderson, R.A.M.C., as K.H.P. on November 22, 1910.) The suggestion of additional pay was rejected.

No further change was made until the issue of Army Order 101 in April 1901, by which the sash was discontinued and the aiguillette substituted for it. The wearing of the Sovereign's cypher was authorized in March 1924 (Army Order 99 of 1924), and of the miniature cypher, by officers who had relinquished the appointment, in June 1937. It should be noted that until 1906,¹ an Honorary Physician or Surgeon held office for life, though those appointed since then have been required to vacate on retirement.

In 1888, it was suggested that similar appointments should be made among Volunteer Medical Officers. Surgeon-Major W. R. Brunton, 1st Surrey Volunteers, giving evidence before the Committee on Volunteer Medical Organization,² in reply to the question: "You have a suggestion with regard to decorations for officers of long service?" replied: "Yes. With regard to the C.B., I do not know that it would be necessary to give that, but I do think that as many men have spent a great many years in the Service, and have given up a vast deal of time and spent a great deal of money, and as their combatant brethren get rewards, if there were two Honorary Physicians and two Honorary Surgeons to Her Majesty the Queen, they would do no discredit to that decoration." No such appointments were, in fact, made until 1910, after

¹Royal Warrant, September 15, 1906. Army Order 232 of 1906.

²Chairman, Colonel H. Eyre, C.B., M.P. Report dated November 6, 1888.

the establishment of the Territorial Force, though the Volunteer Officers' Decoration was instituted by Royal Warrant of July 25, 1892. Until March 1938 (Army Order 38 of 1938), Territorial K.H.P.s and K.H.S.s wore a silver, instead of a gold, aiguillette.

The tale is completed by mention of similar appointments among medical officers of the Armies of Australia and New Zealand from November 1940, and by the addition of King's Honorary Dental Surgeons from April 1945 (Army Order 117 of 1945) and of a King's Honorary Nursing Sister in April 1949 (Army Order 49 of 1949). Honorary physicians and surgeons to the Sovereign were appointed also from the Indian Medical Service (Royal Warrant of February 1, 1859), but they are not further considered in this paper. Mention of them will be found in works dealing with the I.M.S.¹

The list which follows gives the names of officers (Regular, Territorial and Dominions, but not Indian, Services) on whom these distinctions have been conferred. Decorations and degrees are shown as at the time of appointment, in the form then current.

HONORARY PHYSICIANS—REGULAR ARMY

John McAndrew, M.D., <i>K.C.B.</i>	16. 8.59	Name changed to McGregor (<i>London Gazette</i> , July 31, 1863).
Andrew Ferguson, M.D.	16. 8.59	
William Linton, M.D., <i>C.B.</i>	16. 8.59	
John Forrest, M.D., <i>C.B.</i>	16. 8.59	
James Brown Gibson, M.D., <i>C.B.</i>	16. 8.59	
Thomas Galbraith Logan	16. 8.59	
David Dumbreck, M.D., <i>C.B.</i>	21.11.65	
George Stewart Beatson, M.D.	13. 3.66	
William Mure Muir, M.D., <i>C.B.</i>	6. 5.68	
Daniel Scott, M.D.	18. 5.70	
Samuel Currie, M.D., <i>C.B.</i>	24.12.73	
John Fraser, M.D., <i>C.B.</i>	12. 8.74	
Charles Alexander Gordon, M.D., <i>C.B.</i>	22. 3.76	
W. Rutherford, M.D., <i>C.B.</i>	1.12.80	
J. Irvine, M.D.	18. 7.85	
T. G. Balfour, M.D., <i>F.R.S.</i>	23. 4.87	
R. Lawson	6. 5.91	
A. Smith, M.D., <i>C.B.</i>	28. 3.94	
W. A. Thomson, M.B.	9. 1.95	
R. Dominichetti, M.D.	27.11.95	
J. Sinclair, M.D.	5. 8.96	
S. A. Lithgow, M.D., <i>C.B.</i> , <i>D.S.O.</i>	18. 5.98	
J. A. Woolfryes, M.D., <i>C.B.</i> , <i>C.M.G.</i>	18. 1.99	
A. H. Fraser	23.12.99	
A. F. Bradshaw, <i>C.B.</i>	23.12.99	

¹A History of the Indian Medical Service 1600–1913. D. G. Crawford. London: W. Thacker. 1914. Surgeons Twoe and a Barber. D. McDonald. London: William Heinemann. 1950.

William Taylor, M.D., K.C.B.	21. 8.01
A. F. Preston, M.B.	2.11.01
Thomas Tarrant, M.D.	9. 9.03
A. Keogh, K.C.B., M.D.	24. 7.07
G. D. Bourke, C.B.	3. 2.09
J. C. Worman, C.M.G., M.B.	6. 3.10
R. S. F. Henderson, M.B.	22.11.10
W. G. Macpherson, C.M.G., M.B.	13. 1.12
T. M. Corker, M.D.	20. 3.12
W. B. Leishman, M.B., F.R.S.	15.10.12
O. L. Robinson, C.M.G.	11. 4.17
L. W. Harrison	26.12.17
E. Eckersley, M.B.	26.12.17
S. Macdonald, C.B., C.M.G., M.B.	27. 1.18
J. J. Gerrard, C.B., C.M.G., M.B.	27. 1.18
W. W. O. Beveridge, C.B., C.M.G., D.S.O., M.B.	18. 6.20
A. P. Blenkinsop, K.C.B., C.M.G.	27. 1.22
E. S. Worthington, K.C.V.O., C.B., C.M.G., C.I.E.	27. 1.22
H. B. Fawcus, C.M.G., D.S.O., M.B.	1. 1.23
J. C. Kennedy, M.D.	23. 9.23
S. F. St. D. Green, C.B.E., M.D.	1. 5.24
E. Ryan, C.M.G., D.S.O.	18. 2.26
M. H. G. Fell, K.C.B., C.M.G.	3. 6.26
J. A. Hartigan, C.M.G., D.S.O., M.B.	3. 1.27
W. R. P. Goodwin, D.S.O.	20.12.27
R. B. Ainsworth, D.S.O., O.B.E.	16. 9.29
W. P. MacArthur, D.S.O., O.B.E., M.D., F.R.C.P.I.	29. 9.30
P. H. Henderson, D.S.O., M.B.	26. 5.32
H. C. R. Hine, D.S.O., M.B.	30. 5.32
J. W. L. Scott, D.S.O.	1. 3.34
R. C. Priest, M.D.	15. 4.34
T. S. Coates, O.B.E., M.B.	26. 9.35
J. Heatley-Spenser, O.B.E., M.D., F.R.C.P.	6.10.35
G. A. D. Harvey, C.M.G.	1. 3.37
A. G. Biggam, O.B.E., M.D., F.R.C.P.	6. 6.37
L. T. Poole, D.S.O., M.C., M.B.	1. 3.38
R. W. D. Leslie, O.B.E.	28. 3.39
J. A. Manifold, D.S.O., M.B.	26. 3.41
A. Hood, C.B.E., M.D.	1. 8.41
P. S. Tomlinson, C.B., D.S.O., M.R.C.P.	10. 8.41
S. Smith, M.B., F.R.C.P.	13.10.41
J. S. K. Boyd, O.B.E., M.B.	11.11.44
N. Cantlie, M.C., M.B., F.R.C.S.	5.12.44
T. O. Thompson, C.B.E., D.M.	12.12.44
J. C. A. Dowse, C.B., C.B.E., M.C., M.B.	30. 6.46
W. Foot, C.B., M.C., M.B.	1. 1.47
J. Bennet, M.D., M.R.C.P.	31. 3.47
J. J. Magner, C.B., M.C., M.B.	15. 5.48
H. T. Findlay, M.B.	16. 6.48
K. A. M. Tomory, C.B., O.B.E., M.B.	12. 6.49
T. Menzies, O.B.E., M.B.	27.12.49
T. Young, O.B.E., M.B.	13. 1.50
W. R. D. Hamilton, O.B.E., M.B.	1. 2.51

HONORARY SURGEONS—REGULAR ARMY

Thomas Alexander, <i>C.B.</i>	16. 8.59
Alexander Melvin	16. 8.59
John Robert Taylor, <i>C.B.</i>	16. 8.59
Edward Bradford	16. 8.59
Thomas Mostyn	16. 8.59
John Ashton Bostock, <i>M.D.</i>	16. 8.59
Charles Scott, <i>M.D.</i> , <i>C.B.</i>	27. 4.60
Thomas Longmore, <i>C.B.</i>	16. 9.68
Archibald Gordon, <i>M.D.</i> , <i>C.B.</i>	9. 8.71
J. H. K. Innes	15. 8.77
Thomas Crawford	20. 8.86
J. Mouat, <i>V.C.</i> , <i>C.B.</i>	8. 2.88
W. A. Mackinnon, <i>K.C.B.</i>	1. 2.93
J. B. C. Reade, <i>C.B.</i>	31. 7.95
C. D. Madden, <i>C.B.</i>	27.11.95
H. T. Reade, <i>V.C.</i> , <i>C.B.</i>	27.11.95
J. G. Faught	11. 8.97
J. Jameson, <i>M.D.</i> , <i>C.B.</i>	29.10.97
J. Jee, <i>V.C.</i> , <i>C.B.</i>	8. 3.99
J. A. Marston, <i>M.D.</i> , <i>C.B.</i>	26. 4.99
W. F. Stevenson, <i>M.B.</i> , <i>C.B.</i>	14. 9.04
C. E. Harrison	13. 3.07
W. L. Gubbins, <i>C.B.</i> , <i>M.V.O.</i> , <i>M.B.</i>	19.10.09
F. W. Trevor, <i>C.B.</i> , <i>M.B.</i>	6. 1.10
W. W. Kenny, <i>M.B.</i> , <i>F.R.C.S.I.</i>	12. 6.10
R. Jennings, <i>M.D.</i>	1. 4.11
A. T. Sloggett, <i>C.B.</i> , <i>C.M.G.</i>	1. 1.12
S. Hickson, <i>M.B.</i>	2. 1.13
W. Babbie, <i>V.C.</i> , <i>C.B.</i> , <i>C.M.G.</i> , <i>M.B.</i>	1. 6.14
T. W. Gibbard, <i>M.B.</i>	14. 7.14
W. H. Horrocks, <i>M.B.</i>	6.11.14
T. H. J. C. Goodwin, <i>C.B.</i> , <i>C.M.G.</i> , <i>D.S.O.</i>	26.12.17
E. M. Pilcher, <i>D.S.O.</i> , <i>M.B.</i> , <i>F.R.C.S.</i>	26.12.17
C. H. Burtchaell, <i>C.B.</i> , <i>C.M.G.</i> , <i>M.B.</i>	1. 6.18
M. P. C. Holt, <i>K.C.B.</i> , <i>K.C.M.G.</i> , <i>D.S.O.</i>	7. 5.19
J. W. West, <i>C.M.G.</i> , <i>M.B.</i>	15. 4.22
S. G. Moores, <i>C.B.</i> , <i>C.M.G.</i>	7. 6.22
H. A. Hinge, <i>C.B.</i> , <i>C.M.G.</i> , <i>D.S.O.</i>	4. 6.23
C. E. Pollock, <i>C.B.</i> , <i>C.B.E.</i> , <i>D.S.O.</i>	30. 7.23
D. J. Collins, <i>C.M.G.</i> , <i>M.D.</i>	6. 9.23
J. R. McMunn, <i>C.B.</i> , <i>C.M.G.</i>	1. 5.24
W. H. S. Nickerson, <i>V.C.</i> , <i>C.B.</i> , <i>C.M.G.</i> , <i>M.B.</i>	26. 3.25
R. S. Hannay, <i>C.M.G.</i> , <i>D.S.O.</i>	18. 4.26
H. P. W. Barrow, <i>C.M.G.</i> , <i>D.S.O.</i> , <i>O.B.E.</i>	1. 6.26
D. Harvey, <i>C.M.G.</i> , <i>C.B.E.</i> , <i>M.D.</i>	10. 7.26
J. S. Gallie, <i>C.M.G.</i> , <i>D.S.O.</i>	15. 9.26
G. Delacour, <i>O.B.E.</i> , <i>M.B.</i>	20. 3.30
H. Ensor, <i>C.B.</i> , <i>C.M.G.</i> , <i>C.B.E.</i> , <i>D.S.O.</i> , <i>M.B.</i>	15. 4.30
W. R. Blackwell, <i>C.M.G.</i>	1. 5.30
F. D. G. Howell, <i>D.S.O.</i> , <i>M.C.</i>	3. 6.30
A. C. H. Gray, <i>O.B.E.</i> , <i>M.B.</i>	24. 2.32
H. M. J. Perry, <i>O.B.E.</i>	26. 3.33

J. F. Martin, <i>C.M.G.</i> , <i>C.B.E.</i> , M.B.	2. 9.33
F. G. FitzGerald, <i>D.S.O.</i>	9.12.33
J. M. Weddell, <i>F.R.C.S.</i>	28.12.34
D. S. Skelton, <i>D.S.O.</i>	27. 8.35
O. Ievers, <i>D.S.O.</i> , M.B.	6.10.35
H. H. A. Emerson, <i>D.S.O.</i> , M.B.	14. 4.37
G. G. Tabuteau, <i>D.S.O.</i>	13.10.37
W. B. Purdon, <i>D.S.O.</i> , <i>O.B.E.</i> , <i>M.C.</i> , M.B.	15. 4.38
A. D. Fraser, <i>D.S.O.</i> , <i>M.C.</i> , M.B.	16. 4.39
B. Biggar, M.B., <i>F.R.C.S.</i>	27. 8.39
F. Casement, <i>D.S.O.</i> , M.B.	21. 2.40
D. C. Monro, M.B., <i>F.R.C.S.E.</i>	11. 4.40
C. M. Finney, <i>O.B.E.</i> , M.B., <i>F.R.C.S.</i>	26.12.40
O. W. McSheehy, <i>D.S.O.</i> , <i>O.B.E.</i> , M.B.	1. 3.41
G. Wilson, <i>C.B.E.</i> , <i>M.C.</i> , M.B.	13.10.41
D. T. Richardson, <i>M.C.</i> , M.B.	29.10.41
R. E. Barnsley, <i>M.C.</i> , M.B.	28.11.41
G. A. Blake, M.B.	27. 5.42
W. C. Hartgill, <i>O.B.E.</i> , <i>M.C.</i>	27.11.44
D. Fettes, <i>O.B.E.</i> , M.B., <i>F.R.C.S.E.</i>	28.11.45
F. Harris, <i>C.B.E.</i> , <i>M.C.</i> , M.B.	4. 2.46
A. E. Richmond, <i>C.B.E.</i>	20. 6.46
E. A. Sutton, <i>C.B.</i> , <i>C.M.G.</i> , <i>M.C.</i>	22. 7.46
J. Biggam, <i>M.C.</i> , M.B.	19.12.46
R. W. Galloway, <i>C.B.</i> , <i>C.B.E.</i> , <i>D.S.O.</i> , M.B.	9. 9.47
W. E. Tyndall, <i>C.B.</i> , <i>C.B.E.</i> , <i>M.C.</i> , M.B.	1. 3.48
A. G. Harsant, <i>O.B.E.</i> , M.D., M.S., <i>F.R.C.S.</i>	1. 1.49
N. Cantlie, <i>K.B.E.</i> , <i>C.B.</i> , <i>M.C.</i> , M.B., <i>F.R.C.S.</i>	13. 1.50
F. R. H. Mollan, <i>C.B.</i> , <i>O.B.E.</i> , <i>M.C.</i>	13. 1.50
J. M. Macfie, <i>C.B.E.</i> , <i>M.C.</i> , M.B.	29. 3.50
R. D. Cameron, <i>C.B.E.</i> , <i>M.C.</i> , M.B.	26. 1.51

HONORARY PHYSICIANS—TERRITORIAL

J. W. Blandford, <i>V.D.</i>	24. 6.10
J. R. Thomas, M.D., <i>V.D.</i>	19. 6.11
W. Kinnear, M.D., <i>V.D.</i>	3. 6.13
C. P. Oliver, M.D. <i>T.D.</i>	3. 6.13
G. H. Edington, M.D., <i>F.F.P.S.</i> , <i>T.D.</i>	3. 6.22
A. B. Soltan, <i>C.M.G.</i> , <i>C.B.E.</i> , M.D., <i>F.R.C.S.</i> , <i>T.D.</i>	3.12.24
J. G. Martin, <i>T.D.</i> , M.B.	15. 2.27
G. L. Thornton, <i>M.C.</i>	27. 7.30
L. D. Bailey, <i>M.C.</i> , <i>T.D.</i>	6. 8.31
H. F. Humphreys, <i>O.B.E.</i> , <i>M.C.</i> , <i>T.D.</i> , M.B.	15. 2.34
H. T. Bates, <i>O.B.E.</i> , <i>T.D.</i> , M.B.	17.10.36
F. Whalley, <i>D.S.O.</i> , <i>T.D.</i> , M.B.	17. 7.39
R. Errington, <i>C.B.E.</i> , <i>M.C.</i> , <i>T.D.</i> , M.D.	12. 4.44
F. R. Sandford, <i>C.B.E.</i> , <i>M.C.</i> , <i>T.D.</i> , M.B.	28. 1.49
G. J. V. Crosby, <i>C.B.E.</i> , <i>M.C.</i> , <i>T.D.</i>	28. 1.49

HONORARY SURGEONS—TERRITORIAL

A. Clarke, <i>V.D.</i> , <i>F.R.C.S.</i>	24. 6.10
D. Harrison, <i>F.R.C.S.E.</i>	19. 6.11
W. H. Bull, <i>F.R.C.S.E.</i> , <i>V.D.</i>	3. 6.13

J. A. Jones, M.D., <i>V.D.</i>	3. 6.13
A. D. Sharp, <i>C.B.</i> , <i>C.M.G.</i> , <i>F.R.C.S.</i> , <i>T.D.</i>	3. 6.22
J. Clay, <i>C.B.E.</i> , <i>M.B.</i> , <i>F.R.C.S.</i> , <i>T.D.</i>	3. 6.22
F. Kelly, <i>C.B.E.</i> , <i>M.D.</i> , <i>T.D.</i>	3.12.24
E. C. Montgomery-Smith, <i>C.M.G.</i> , <i>D.S.O.</i> , <i>T.D.</i>	3. 6.25
F. H. Westmacott, <i>C.B.E.</i> , <i>T.D.</i> , <i>F.R.C.S.</i>	8. 9.26
T. Kay, <i>D.S.O.</i> , <i>T.D.</i> , <i>M.B.</i>	8.11.27
R. E. Bickerton, <i>D.S.O.</i> , <i>T.D.</i> , <i>M.B.</i>	8.11.27
F. G. Proudfoot, <i>T.D.</i> , <i>M.D.</i>	16. 2.29
C. L. Isaac, <i>T.D.</i> , <i>M.B.</i> , <i>F.R.C.S.E.</i>	16. 2.30
P. H. Mitchiner, <i>T.D.</i> , <i>M.D.</i> , <i>F.R.C.S.</i>	16. 2.32
A. R. Moodie, <i>T.D.</i> , <i>M.D.</i> , <i>F.R.C.S.E.</i>	22. 2.34
E. H. Cowell, <i>K.B.E.</i> , <i>C.B.</i> , <i>D.S.O.</i> , <i>T.D.</i> , <i>M.D.</i> , <i>F.R.C.S.</i>	21. 4.44
A. L. Crockford, <i>D.S.O.</i> , <i>O.B.E.</i> , <i>M.C.</i> , <i>T.D.</i> , <i>M.B.</i>	2. 1.50

HONORARY PHYSICIANS—DOMINIONS

D. M. McWhae, <i>C.M.G.</i> , <i>C.B.E.</i> , <i>V.D.</i> , <i>M.D.</i> , <i>F.R.C.P.</i> (Australia)	22.11.40
F. T. Bowerbank, <i>O.B.E.</i> , <i>E.D.</i> , <i>M.D.</i> , <i>F.R.C.P.</i> (New Zealand)	22.11.40
S. R. Burston, <i>C.B.</i> , <i>C.B.E.</i> , <i>D.S.O.</i> , <i>E.D.</i> (Australia)	21. 8.45
R. D. King, <i>C.B.E.</i> , <i>D.S.O.</i> , <i>M.D.</i> , <i>M.R.C.P.</i> , <i>F.R.A.C.P.</i> (New Zealand)	30. 4.47
F. K. Norris, <i>C.B.E.</i> , <i>D.S.O.</i> , <i>E.D.</i> , <i>M.D.</i> , <i>B.S.</i> (Australia)	20. 8.48

HONORARY SURGEONS—DOMINIONS

R. W. Whiston-Walsh, <i>D.S.O.</i> , <i>V.D.</i> , <i>M.B.</i> (Australia)	22.11.40
K. McCormick, <i>D.S.O.</i> , <i>E.D.</i> , <i>M.B.</i> , <i>F.R.C.S.</i> (New Zealand)	22.11.40
W. H. B. Bull, <i>O.B.E.</i> , <i>E.D.</i> , <i>M.B.</i> , <i>Ch.B.</i> , <i>F.R.C.S.</i> (New Zealand)	15. 6.48
K. B. Fraser, <i>E.D.</i> , <i>M.B.</i> , <i>Ch.M.</i> , <i>M.S.</i> , <i>F.R.A.C.S.</i> (Australia)	18.11.49

HONORARY DENTAL SURGEONS—REGULAR ARMY

A. B. Austin, <i>C.B.</i>	17. 4.45
G. ap G. Jones	5.12.47
H. J. Higgins, <i>O.B.E.</i> , <i>F.D.S.</i>	27.10.48
B. E. Gentleman	4. 1.49
S. H. Woods, <i>O.B.E.</i> , <i>F.D.S.</i>	16. 1.49
J. Wren, <i>F.D.S.</i>	13. 1.51
W. L. Pearson	23. 1.51
J. L. Gibson	5. 3.51

HONORARY DENTAL SURGEON—TERRITORIAL

R. A. Broderick, <i>D.S.O.</i> , <i>M.C.</i> , <i>T.D.</i> , <i>M.B.</i> , <i>M.D.S.</i>	5.12.47
--	---------

HONORARY NURSING SISTER

Anne Thompson, <i>C.B.E.</i> , <i>R.R.C.</i>	2. 4.49
--	---------

A CRITICISM OF MILITARY PSYCHIATRY IN THE SECOND WORLD WAR

BY

Captain H. J. C. J. L'ETANG, B.A., B.M., B.Ch.
Royal Army Medical Corps (T.A.)

One truth we gain
 From living through the years.
 Fear brings more pain
 Than does the pain it fears.

JOHN GOLDEN.

PART I

INTRODUCTION

WHEN the "Medical History of the Second World War" is completed it will certainly contain a large section dealing with psychiatry in the armed forces. Unfortunately this volume will not be published for many years, but there can be no doubt that the development of this speciality, and the policy and methods adopted by its exponents had an important influence on the distribution of man-power and ultimately on the conduct of the war.

The number of cases invalided from the armed forces for psychiatric disorder is a measure of that influence. Between September 1939 and August 1945, 109,000 cases were discharged from the British Army alone [1], and one-quarter of these had served less than one year [2]. Figures for the Royal Navy and Royal Air Force are not available. It is probable that at least twice this number of men were posted to non-fighting units on the advice of psychiatrists, and were lost to the Army as fighting soldiers. There are no definite records but Brigadier Rees, Consultant Psychiatrist to the Army, has analysed 225,000 cases referred to area psychiatrists in the United Kingdom by unit medical officers during the Second World War [3]. His figures show that while only 15 per cent of these cases were invalided, between two and three times this number, namely 37 per cent, were found alternative employment in non-fighting units. Rees does not mention the ultimate fate of a further 18 per cent of the cases who were treated in special "Neurosis Centres," though Slater [4], who studied a smaller series in one of these centres, found that three-quarters were later discharged. Of the remaining cases, Rees noted that 19 per cent were returned to their units, and a further 9 per cent kept under observation in out-patients or unit lines.

It is the object of this thesis to criticize the psychiatric policy for three

reasons. Firstly, because its success has been too readily assumed by the public and the medical profession. Secondly, because a comprehensive document on the subject is unlikely to appear for many years, and thirdly, because the policy caused unnecessary wastage of man-power and lowered the fighting efficiency of the Army. This could not be tolerated in a future war.

The thesis includes an account of the writer's experiences while serving as a regimental medical officer from 1943 to 1946, and the result of an examination of patients in a general practice who had been invalided for psychiatric disorder. The material is unsuitable for quantitative analysis but certain tentative conclusions have been drawn which are then examined in the light of evidence obtained from a survey of the literature.

PERSONAL EXPERIENCES IN R.A.M.C. (1943-1946)

The recording of personal experience is only of value to others when mistakes that have been made, lessons that have been learned, and suggestions for future action are discussed.

It is generally agreed that modern life has become more complex, and each day brings new inventions and new technical processes, with the result that men who hitherto have been regarded as labourers or semi-skilled technicians require special training to perform their work. Consultants and general practitioners are beginning to realize the futility of discussing a man's fitness for work, when they are ignorant of the nature of that work. In the past ten years similar complicated changes have taken place in the armed forces, and it is only the experienced unit medical officer who lives in the same environment as the men and knows the hazards they face, who can judge whether they are fit to perform their duties. Unfortunately the unit medical officer is rarely consulted in the Services. He holds the most junior rank, and under active service conditions it is difficult to keep records or to follow cases. Nevertheless, it did appear that research into war neurosis carried out in Base hospitals in Home Commands also lost something of its value by the unnatural divorce from front-line conditions. For this reason, the writer's views on Service psychiatry may be of interest since he served for three years as medical officer of an infantry battalion which played a special part in the invasion of Europe and the crossing of the Rhine. It is hoped that his observations will emphasize the need for a more practical approach to the problem.

During the earlier part of the Second World War, the majority of junior medical officers had had no experience of active service and were ignorant of the treatment and disposal of psychiatric cases. Reference to the literature only disclosed descriptions of the acute battle neuroses which were observed in the First World War. Consequently the average medical officer found himself unable to assess the cases of chronic neurosis, which occurred in theatres remote from the war. The writer certainly felt unqualified to give an opinion on the following cases which were referred to him when the battalion was mobilized.

(1) Sjt. S.—Was “Provost Serjeant,” and had served with another unit in the B.E.F. in 1940. He was tense, anxious, and nervous, and though a regular soldier of long experience, the Colonel was afraid that he might prove unsuitable on active service.

(2) L/Cpl. W.—Was in the Pioneer Platoon which was responsible, among other more mundane duties, for mine clearance and the preparation of explosive charges. The man was said to be nervous, anxious, and unduly worried over his duties.

(3) Pte. B.—Had served with another unit at Dunkirk in 1940. He complained of severe headaches for which no organic cause could be found. Repeated reassurance seemed only to make the headache more persistent.

The writer referred these cases to the Corps Psychiatrist without perhaps giving a full enough history, or a complete account of the men's duties. The Psychiatrist, largely ignorant of the men's environment, and perhaps over-fearful of the possibility that they might break down in action or cause a panic, recommended that Sjt. S. and L/Cpl. W. be down-graded and transferred to Home Service Units, and that Pte. B. be invalided as a case of hysteria.

It is easy to be wise after the event, but the Provost Serjeant, even in action, is seldom engaged in active fighting, and rarely leaves the battalion headquarters which is one to two miles behind the forward posts. L/Cpl. W. was engaged in work requiring the cool, calculating type of courage, and one feels that he should have been removed from this work, but given other work within the unit. Cases similar to that of Pte. B. became very frequent. They persisted in their complaints until medical officers and consultants invalided them in self-defence. The unit medical officer is forced to ask for an opinion on these men, in case an organic or even a psychological disorder is present, but one feels that the specialist should point out to the men that the mere possession of symptoms does not preclude them from doing their duty. It is doubtful if Pte. B. should have been posted from the unit, and he certainly should not have been allowed to leave the Army.

Two further cases illustrate the widening gulf that existed between consultants, psychiatrists and unit medical officers.

Pte. O'R.—Was a regular soldier who had suffered a fracture of one of the spinal laminæ some years previously, and who persistently maintained that he could not wear a pack—an opinion with which the orthopædic surgeon did not concur. On returning from leave the writer found, to his surprise, that in the interval Pte. O'R. had seen another specialist who had recommended him for treatment at the “Effort Syndrome Centre” at Mill Hill. He had made many complaints but had never mentioned any of the symptoms of this condition.

Pte. B.—Was an odd personality who was happy in the role of “platoon eccentric.” When abused by a particular foul-mouthed Serjeant-Major, he retaliated in kind. The Colonel referred him for psychiatric opinion as a disciplinary problem, and invaliding was recommended on the grounds that he was a “Psychopathic personality with anti-social trends.”

Pte. O'R.'s departure was welcomed by his Company Commander and the removal of such cases from a unit was often justified on the grounds that their Colonels did not want to retain them. If a man's discharge from the Army

is related to his nuisance value, it seems likely that recalcitrancy might become epidemic. For the very reason that these men are difficult to train, officers and instructors are only too anxious to be absolved from this responsibility, and they frequently make use of psychiatrists to effect this. It is only fair to say that in many of these cases, psychiatrists acted in the best of good faith, and were quite unconscious of the motives underlying the requests for their opinion made by units commanders. In the case of Pte. B., his Company Commander, who was the best officer in the battalion, and the last person to tolerate a bad soldier, pleaded for his retention, but the machinery had been set in motion and Pte. B. was invalidated.

Training for the assault on Normandy had begun in July 1943, and although the place and date were kept secret, it became obvious to all that the operation must begin in the summer of 1944. In the early stages of the training, the invasion had seemed a vague possibility in the distant future, but by May 1944 it had become a grim reality. Under these circumstances several cases of neurosis occurred:

Sgt. B.—Complained of pain in the left side of the chest and palpitations. No organic disease was found. Enquiry revealed that he had been given an extremely hazardous task which required him to land on the beaches in front of the assaulting infantry to mark the lanes made by the assault engineers. As this was an individual task of great importance, he was taken off this and reverted to his normal duties of Platoon Sergeant.

Pte. X.—Had served with another unit at Dunkirk in 1940, and said that he could not face the prospects of going into action again. On the advice of the Corps Psychiatrist he was posted to a home service unit.

It is now obvious that a definite psychiatric policy had been laid down by higher authority. The Service psychiatrists maintained that by examination they could select those men who were liable to break down in action, and accordingly recommended that they should be removed from fighting units on the grounds that they would never make efficient soldiers. Unit commanders and medical officers could hardly ignore the recommendations of psychiatrists, however, much they may have disagreed, and at times it appeared as if the consequences of the policy did not escape the attention of potential psychiatric casualties. It certainly prevented the unit employing this officer:

Lieut. L.—Landed on D day in Normandy and was posted to a second unit in August 1944. In October 1944 after two months of fighting, symptoms of increased frequency of micturition which had been present for many years grew worse. He had received psychotherapy without improvement and had been placed in Category B as unfit for front-line duties. At that time the writer's unit was on base duties, but almost at once it was mobilized again. In conversation Lieut. L. said that he felt he was lucky to have survived as long as he had, and that he might not be so lucky again. On another occasion he said "he might let his men down," though it was difficult to see how the frequency of micturition should affect the platoon.

This officer was unfit to lead a platoon in a normal infantry role. At the time, the battalion was awaiting the move to the Rhine, but its exact role in the crossing was uncertain. In the event, two companies remained on the near bank and were mainly concerned in marshalling and traffic control duties. If

the writer had known this, he would have recommended that this officer was fully capable of manning one of the many check points in the traffic circuits.

As it was the policy to remove any men who complained of psychoneurotic symptoms from the combat area, it is difficult to find men with obvious abnormalities who carried on. However, three case histories may be recorded:

Pte. B.—Was first seen in April 1943, when his Serjeant-Major complained that he was continually reporting sick. He was a thin, weedy, pale, nervous youth, obviously immature, and lacking in confidence. He received no treatment other than reassurance. He improved to such an extent that he became responsible for mine clearance in his company area.

Pte. N.—Was first seen in November 1944. He had gone with another unit to North Africa in 1942 as the "Stretcher-Bearer Serjeant" but had been reduced to the ranks for cowardice. He had stayed with the unit until October 1944. The medical officer had arranged for him to stay in B. Echelon, so although he remained in an infantry battalion, he was exposed to very little danger. He said that he could not face the coming battle on the Rhine and asked to be posted. His Company Commander said he would have to take his chance with the other men. Just before the crossing, he became due for leave and the experiment never took place.

Cpl. Y.—Was seen in November 1945, when he came in a draft from another battalion of the Regiment. He displayed the typical signs of the "Effort Syndrome" to a severe degree, but despite this had carried on in action from February to May 1945. His unit was manning the perimeter at Dunkirk, and although in active contact with the enemy, there was not a great deal of danger.

DISCUSSION

These cases are the more memorable ones although in front-line infantry units they were comparatively rare. However, if these few cases are multiplied by the number of infantry battalions in the Army, and if one considers that a larger number of cases were invalided before they reached a first-line battalion, it is easy to see that what appeared to be a trickle at the unit level became a flood when the Army was considered as a whole.

Subsequent experience showed that all the cases which have been quoted were fully capable of performing the specialized duties required by the battalion on the Normandy beaches and on the Rhine, though perhaps it was too much to expect that consultants, psychiatrists, and newly qualified medical officers should possess such an intimate knowledge of the Army, that they would realize that a "Beach Group" role is less hazardous for a battalion than the normal operational role.

The writer considers that these cases should have been assessed in a different way, and that they could have given useful service if retained in the unit. Even in the line men are fighting for but a small part of the time, and there is always a rapid turnover of man-power in an infantry unit. Men are killed or injured in accidents, they fall sick, they are sent on courses, they even receive leave, and death when it comes may strike unexpectedly in concentration areas or "forming-up" positions. Many do not remain with the unit to fight in battle, and many who do fight do not survive long enough to develop a battle neurosis. Realizing that the expectation of life for an infantryman

is short, every doctor should ask himself whether the potential casualty may not be able to give a few hours active service, in itself more valuable than several months' base duty. For every day that the potential psychiatric casualty serves, the supposedly fitter man who under present policy would have to replace him, can be fighting on another front, or be part of the reinforcements which will fight the battles which lie ahead. This point may be illustrated further if one considers an assault force containing psychiatrically fit and unfit personnel. Some of the fit men may be killed before the battle begins and play no part in the action. Some of the psychiatrically unfit men may be killed or wounded, but even if they break down after a few minutes, they will have played a more important part in the battle than the dead.

There are many who would say that to force the type of men that has been described to go into action would be callous and inhuman. It might be so, were it not for the fact that every man who goes into action may become a psychiatric casualty. It would seem to be illogical to remove some men from active service conditions altogether on the grounds that they might break down after a short time, thereby increasing the strain on sounder men who also ultimately become psychiatric casualties in the unlikely event of them surviving so long.

After his psychiatric experiences with the American Army in Italy, Appel [43] observed that by the time a man had served between two hundred and two hundred and forty combat days in a rifle battalion, he was non-effective. He found that the average British rifleman lasted four hundred combat days, due to the fact that he was given short rest periods.

(To be continued)

At Random

FIELD TRAINING

IN this number we have an account of the *Field Training Centre, Royal Army Medical Corps*, by a keen exponent and in recent issues have had several accounts of field work and "*Rock*" exercises which have stressed field training. These show the measures which are being taken at present to try to bridge the gap between war and peace conditions and to ensure that the members of the Medical Services are in fact ready for service in the field, should and when emergencies arise.

Very different were the experiences of many in the Service in past years. Financial and other limitations restricted for many their service to purely peacetime, civilian pattern, professional and technical work with only occasional spasms (spasms were perhaps indeed the correct term for many) of service in camp, on special exercises or even during field days. But, even on or in these, the medical officer and man often did little field training and his work was limited for a variety of reasons to peacetime types of routine work.

Very seldom indeed did a formed, fully formed not skeleton, make believe unit appear as such and function as such in the field or on field exercises. The expense was too great; training grants should more properly be spent on training of fighting troops, not Services; there were not enough medical men and other ranks to spare from normal fixed duties; it cost money to use up equipment, bandages, tent pegs and even the famous safety-pin (about which the correspondence cost six months and 3s. 9d. at penny postage rates).

It is true that there were summer training camps and particularly camps of the Territorial Army and O.T.C. at which medical units sometimes actually appeared in formation and functioned as such in the field; but there was often little realism, often much make-believe and much restriction to camp and peace routine.

It is also true that there were at times unofficially arranged and unexpected training camps of the various excursions and alarms in the outposts of Empire: the Indian frontier, Burma, Malaya, Malabar, China, Palestine, East and West Africa. But the numbers of personnel of the Medical Services involved were small and few were the fortunates who were able to gain this field training and acquire this valuable personal experience. All the more valuable in some ways from the very fact that finance and the exigencies of the service limited the equipment and numbers with a consequent maximum need and exercise of ingenuity in the use of improvised material and equipment.

It was, of course, in many ways a great compliment to the Medical Services that they were expected by combatant commanders and administrators to produce, possibly at a couple of days' notice, formed medical units fit for and capable of taking immediate part with, and do the field work for trained combatant units of a brigade ordered off on some immediate alarm. The astonishing and pleasing aspect of such compliment was that the medical units and personnel so often did, in fact, function creditably and soon fulfilled their job at a field trained standard. Let us quote an actual example, readers can possibly bring to mind similar instances.

Sudden alarm on Monday on the Frontier; on Tuesday troubles, turmoil, telegrams and tribal activity; Nth Brigade ordered to mobilize at P—— on Wednesday; Nth Field Ambulance ordered to mobilize on Thursday, to join Brigade on Friday night, entrain on Saturday morning at 0600 hours, reach destination at 1200 hours and march 14 miles with Brigade at 1400 hours. The equipment was at three different places in or near P——, the officers and men of all grades and types at various stations at distances from 30 to 300 miles, many had never been on field service and few on any recent field exercise.

They did it.

They were ready (except for two water tank trailers for which there were no hooks on the towing vehicles) for the march on Saturday at 14.30 hours when heavy rain temporarily stopped proceedings and were complimented on their turnout next day by the Divisional Commander.

But these are small units, numbers affected are small and the presence of one or two with past experience of field work and field training made *all* the difference.

Under our present set up many are and will be given the opportunity of Field Training and at least should "know how" when the emergency arises.

In addition to this Field Training the maintenance of physical fitness in all ranks, very particularly the senior ranks, is a parallel necessity. It is in the early stages of the emergency very often that the greatest physical exertion, the severest physical discomfort and the heaviest mental responsibility are incurred; and it is then that those "breakdowns" occur which are so disconcerting and which so disrupt the planned arrangements. If readers will forgive references to personal experience, it is perhaps of interest as an illustration of this point to mention that during the initial stages of the Japanese invasion of Burma and the subsequent retreat of all British forces through the wild country of the Burma-India frontier no less than nine seniors (medical officers and warrant officers) collapsed physically and/or mentally, not wounded or sick, and had to be evacuated when evacuation was extremely difficult. The loss at a critical time of nine senior experienced men, who naturally held key positions amongst our very limited resources, made administration and control, already difficult from the circumstances, no easier.

This was undoubtedly due to the very natural and at that time rather

normal attitude in apparently quiet corners of the Empire towards the removal of unfit seniors from responsible posts under peace conditions of service: reluctance to recognize that certain seniors were senile and unfit, certainly physically and possibly mentally unfit for the excursions, alarms and stresses of unexpected field service.

"Or you can't go pushing old so-and-so out of the Service, he hasn't done his thirty years," or "he hasn't earned his full pension," or "he is still doing quite a good job," or "we are so short of personnel that we cannot replace him." Such was the peacetime attitude towards the retention of persons who were known to be or quite obviously could be seen to be physically unfit. The Seniors hung on in key positions doing and possibly very capably doing normal, routine, peacetime duties. But when the sudden emergency involved the whole organization and all medical personnel serving in it, then the physically and mentally unfit soon collapsed under the stress of that emergency.

In a letter in our *correspondence* pages of this number this matter of physical fitness is mentioned from a different angle, from the point of view of the carriage of the *Soldiers' Load* and the fatigue caused by the unaccustomed carriage of that load, the restrictions of ill-balanced equipment and the pain and discomfort of sore feet unaccustomed to marching. Those who have been involved in any of these sudden excursions will probably recall the fatigue of the second, third and fourth days with the consequent reduction of efficiency and realize the truth of the dictum "there is no training for marching like marching."

Our field training methods have improved out of all recognition compared with past decades and personnel are given that practical experience which is so valuable and essential. But combined with this training must be a continual maintenance of the physical fitness of ALL those so trained; hard physical fitness, particularly of Senior key men and women whose experience and training should be so valuable to meet emergency. It is in fact a duty of Senior Commanders and administrators to see that both they themselves and also those under their control maintain their personal fitness. The physically and mentally unfit should be weeded out, or, perhaps more kindly put, relegated to work more suited to their capacity, and that they should not be left in key positions to collapse in those first critical times of emergency for which the forces have been prepared by their field training.

Clinical, Historical and Other Notes

CASE REPORT OF A PREMATURE INFANT

BY

T/Major G. B. CHAMBERLAIN, M.B., B.S., D.R.C.O.G.

Royal Army Medical Corps

Commanding a Military Families Hospital, Home Counties District

IN recent years, the care of the premature infant has tended to pass into the hands of a small group of specialists working in specially equipped units. The man of more general training may therefore be deterred from applying the older principles of therapy by the fact that he lacks these facilities and the special experience. It is felt that this case may be of interest as a reminder that there are still circumstances in which the interests of the patient may be best served by the application of more classical medicine by the man on the spot.

CASE HISTORY

Mrs. D. M., aged 27, had one previous normal delivery, followed by a post-partum hæmorrhage, treated by transfusion. Her second child was due on November 15, 1950. When booked at 16 weeks, she was found to be Rh-negative, but no antibodies were present. Her husband was Rh-positive and both were Group O.

On August 28, she was admitted to hospital after draining liquor for two days. The foetus was radiologically normal but the maternal serum contained Rh-antibodies in the albumin to a titre of 1:4. On September 1 a physically normal infant of 2 lb. 7 oz. was born with no evidence of anæmia. The cord blood was reported Group O, Rh-negative, the Race-Coombs test was negative and no antibodies were present.

The infant was immediately transferred to a Queen Charlotte's box in which continuous oxygen was maintained for seven days, being gradually discontinued in the second week. Heat was maintained by central heating augmented as necessary by hot water bottles.

Feeding was commenced with an improvised Belcroy type feeder, but feeding by gavage became necessary on the tenth day because of respiratory distress and twitching during feeds. Reversion to bottle feeds was carried out in the sixth week by changing one feed daily. Feeding was commenced after twenty-four hours at two-hourly intervals with a feed of 2 drachms. Night feeds were given three-hourly during the sixth week, preparatory to three-hourly feeding in the seventh week. Thereafter one feed was omitted every two weeks so that six three-hourly feeds were taken daily from the tenth week. Until breastmilk was introduced in half-dilution on the fifth day, Nestlé's Sweetened Condensed Milk 1:16 was employed. Breast milk was increased by two stages to full strength on the ninth day. Owing to the failure of lactation, Humanised Trufood supplements were introduced at six weeks and ultimately replaced breast milk at the end of the ninth week.

Vitamin supplements in the form of ascorbic acid and adexolin liquid were commenced at seven weeks and *mist. ferri et ammon. citras pro infans.* at ten weeks.

The infant was discharged on the eightieth day, weighing 6 lb. The mother, who had been discharged at the end of the third week when lactation was well established, was readmitted for two days to gain confidence in handling the infant.

The infant receives general medical services from the writer who has, however, not been required since discharge from hospital. Her weight at 8 months was 13 lb. 13 oz. representing an average weekly gain of 4.7 oz. When it is borne in mind that, at ten weeks, she was still 1 lb. below the average birth-weight of female infants, it compares quite favourably although it is about 3 lb. below the average for the age. Her achievements in the physical and mental progress are within the normal limits.

DISCUSSION

This infant was reared by the application of the classical principles of maintenance of heat, oxygen, and fluid by a staff who possessed only such experience of premature infants as they had acquired during the course of normal obstetric training and with no special equipment apart from the Queen Charlotte's box.

The case is felt to illustrate that, provided adequate oxygen is available, the premature infant is best nursed in the establishment in which it is born. It is considered that the disturbance of transporting this infant, with the associated difficulty of maintaining warmth and oxygen, would have been lethal. It is also felt that the administration of continuous oxygen should be maintained for at least four days in all cases under 3 lb. irrespective of their apparent condition. The confidence with which the mother managed the infant at home fully justified her readmission which was much appreciated by the mother herself.

To meet certain obvious criticisms, a few further points are made. The gavage feeding was continued for longer than is customary because of distress caused by sucking for long enough to secure an adequate intake. The withholding of vitamin supplements and iron was considered justified because of a steady rise in weight and improvement in general condition, associated with a marked tendency to vomit.

The use of sweetened condensed milk is rather controversial and therefore worthy of further consideration. The constitution of this milk, and breast and a humanized milk in quarter dilution as would be used under similar circumstances are compared.

				<i>Protein</i>	<i>Fat</i>	<i>C-Hydrate</i>	<i>Cals. per oz.</i>
Breast milk	...	...	1:4	0.4%	0.8%	1.5%	5.5
Humanized Trufood	...	...	1:4	0.4%	0.8%	1.5%	4.75
Nestlé's Milk	...	...	1:16	0.6%	0.65%	3.3%	6.5

Since one of the main problems in the early days is to administer sufficient food to maintain an adequate calorie intake, the high caloric value of the latter preparation is considered an advantage. The higher casein content, compared to breast milk, is common to both artificial feeds. In theory, the increased carbohydrate content might lead to relaxed stools, but the writer has not found this to be the case in practice, possibly due to the constipating action of the

increased protein content. Whilst the use of this preparation is strongly supported as an initial feed, it is agreed that, if breast milk fails at a later stage as in this case, a humanized milk is undoubtedly the food of choice.

The serological aspects of this case remained unexplained. At the sixth week the maternal serum contained Rh-antibodies to a titre of 1:32 in albumin in spite of the cord blood findings.

I wish to place on record my appreciation of the untiring work of Captain E. J. Crook and the nursing officers of this unit, because their nursing skill is responsible for the successful outcome of this case.

I thank Colonel R. H. Robinson, *T.D.*, R.A.M.C., A.D.M.S. Home Counties District, for permission to publish this case.

TERRITORIAL ARMY AMBULANCE CHALLENGE SHIELD COMPETITION

BY

Brigadier F. K. ESCRITT, *O.B.E.*

Late Royal Army Medical Corps

THE annual competition for the Territorial Army Ambulance Challenge Shield was held on Saturday, June 9, 1951, in the grounds of the Army School of Health, Mytchett. The winning team was the 165(W) Casualty Clearing Station led by Sjt. F. Holden, R.A.M.C., and the runners-up were the 130(WK) Field Ambulance under S/Sjt. V. L. T. Hearn, R.A.M.C.

Altogether eleven teams entered and all showed a high standard. There was only half a mark between the first and second team, and the same between the second and third team.

On the whole the weather was kind. In the morning it was warm and sunny, and in the afternoon, after a short spell of rain, it became cloudy and cool, which was just as well in view of the forthcoming strenuous tests.

The Challenge Shield was originally presented by the Volunteer Medical Officers Association in 1891 and was competed for annually, except during the two war periods. Last year it was re-started under the original rules and held, as before, on the barrack square behind the Royal Army Medical College, Millbank. This proved most unrealistic and uninteresting to both competitors and spectators, and therefore it was decided to hold it elsewhere in future where there were natural hazards. One's thoughts immediately turned to Mytchett with its lake, nullahs and woods and also to the staff of the Field Training School, R.A.M.C., whom we knew would give all the necessary assistance.

The only fly in the ointment was the distance from London, this being

especially awkward for teams coming from the North. The Territorial Army Medical Officers Association was approached and they readily agreed to the new rules, and to the Competition being held at Mytchett this year.

The Commandant Field Training School was given the order to go ahead and he produced a very realistic competition which called for initiative and quick decisions on the part of the competing teams and proved of interest to spectators.

In the morning "in-door tests" were held in the garage bays. Spectators were able to watch from "in front." There were six tests: A, fractured clavicle; B, electric shock with coma; C, Q.A.R.A.N.C. having fallen off her bicycle and received injuries to the knee and scalp; D, equipment quiz; E, pressure priority; F, fracture of cervical vertebra. All "casualties" were "faked" and the symptoms and physical signs well enacted.

In the afternoon the "out-door test" consisted of a fracture of the femur sustained "somewhere" in a forward area. This entailed, after applying first aid, removal by assault boat to the other side of the lake. After disembarkation Manifold Harness was applied, and the casualty carried across two wires over a ditch then a rickety bridge made out of duckboards. From there he was carried over a barbed wire coil fence and thence through a low tunnel. After that the "casualty" had to be carried over a palisade consisting of a vertical fence about 8 ft. high, and finally removed to the final point where a Thomas splint was applied.

The judging, which was no light task, was ably carried out by Lieut.-Colonel R. T. Shipman of the R.A.M.C. Depot, Lieut.-Colonel R. A. Stephen and Major I. MacPhail of the Cambridge Hospital, Lieut.-Colonel H. N. Perkins of the Q.A.M. Hospital, Millbank, Major A. E. K. Price of 19(S) General Hospital (T.A.) and Major S. MacKenzie of the Medical Directorate, the War Office.

Now for a word on the social side. Music was provided by the R.A.M.C. band by Captain L. D. Brown, the Director of Music, by kind permission of Colonel T. F. M. Woods, *O.B.E.*, Commandant, R.A.M.C., Depot and Training Establishment. This could be heard from all points on the course. Teas were provided, on payment, by the NAAFI and were served in a marquee facing the lake and opposite the finishing point.

At 5.30 p.m. Major-General F. Harris, *C.B.*, *C.B.E.*, *M.C.*, *K.H.S.*, presented the Shield to the winning team, and the Challenge Cup to the runners-up, on behalf of the Director-General, who was unavoidably prevented from attending.

Before presenting the Shield, Major-General Harris congratulated the winners and runners-up and commented on the high standard achieved by all teams. He thanked the judges for volunteering and giving up their Saturday, and to the "casualties" for their bravery and endurance. He also thanked the staff of the Field Training School for so ably organizing the Competition, and the Commandant Army School of Health for lending the grounds and providing accommodation for the teams and putting the Officers' Mess at the disposal of the T.A., M.O.s Association.

Amongst V.I.P.s present were Sir Ernest Cowell, General Mitchener and Professor Crew. Regular Army Officers present were Major-Generals McFie, Barnsley and Wren, Colonel Franklin and the writer.

On the conclusion of the Competition the President and Members of the T.A., M.O.A., very kindly invited the senior officers, the judges and the staff of the Army School of Health and Field Training School to a cocktail party in the Mess—a gesture which was much appreciated, and thoroughly enjoyed.

REPORT ON THE XIII INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY

BY

THE DIRECTOR GENERAL

ARMY MEDICAL SERVICES

XIII CONGRESS

THIS XIII Congress of International Military Medicine and Pharmacy was held at the Val-de-Grace Hospital in Paris from June 17 to 23, 1951. This was followed by a meeting in Vichy of the International Committee on Medical Documentation from June 24 to 25, 1951. I attended the Congress as the British Government representative.

The Congress was attended by official delegates from forty-three nations, but there were no delegates from the countries behind the Iron Curtain. There were official delegates present from Yugoslavia.

As regards the British Commonwealth, there were official delegates from the U.K., Canada, Australia, New Zealand and Pakistan.

In addition to the official delegate from the U.K., there were observers from the Atomic Energy Research Establishment at Harwell, and two observers from the British Medical Association Armed Forces Committee.

The total number of Congress members was 1,800.

The meeting place of the Congress was the Val-de-Grace Hospital in Paris, the principal French military hospital, and the training college for French military medical officers. The president of the Congress was Médecin Inspecteur Generale Jame. Special buildings were put up for the meetings, and there was an extensive exhibition by civilian pharmaceutical firms, and medical, surgical and X-ray manufacturing firms.

OPENING SESSION

The opening session of the XIII Congress was held at the Grand Amphitheatre of the Sorbonne, in an atmosphere of great solemnity, and the speeches

were interpolated by some fine music from the band of the Republican Guard.

The retiring President, General Landero Ramirez, Mexico, emphasized the international altruism which constitutes the primary professional duty of the army doctor. He paid homage to the School at Val-de-Grace, whose centenary was to be celebrated during the Congress session.

The next speaker, Medical Inspector General Jame, Director-General of Army Medical Services, and President of the International Army Medical and Pharmaceutical Committee, welcomed the members of the Congress and, in an admirable account, outlined the history of military medicine, and of Army Medical officers who "in diverse uniforms, while loyally serving their own respective countries, have given the same devotion in assuaging human suffering."

With natural pride, he recalled the great names which shed lustre on the Medical School of Val-de-Grace, and whose rays extend over all the activities of military medical officers.

He then outlined the results of the work of the International Army Medical and Pharmaceutical Committee which included "The humanization of war, the protection of victims both civil and military, the establishment of health zones and towns, these were the hopes, perhaps Utopian but generous, that military Medicine was the first to have the honour of formulating.

"These ideas have made their way in the world. They have inspired the work of the Diplomatic Conference at Geneva in 1949; the great civil medical associations have elaborated a world-wide system of medical ethics; and Doctor George Duhamel recently posed the problem of medical ethics which might contribute towards the establishment and maintenance of a civilization that was truly humane, efficient, and worthy of respect. 'Medicine,' said Hyacinthe Vincent, Professor of Val-de-Grace in 1925, 'is a symbol of civilization and of peace. It appears as a generous hope and a beneficent promise.'"

In conclusion, Monsieur Louis Kahn, Secretary-General to the Armed Forces, in opening the XIII International Congress, hailed medical technique by saying: "I am compelled, with the modesty of the Engineer in the presence of the Doctor, to state that you are the technicians of a kind different from our own. It is a matter for discussion whether the technique of the engineer (I am not speaking of persons) is immoral or amoral. But it is beyond question that your technique is moral . . . and that, nobody will contest."

There were five main sessions of the Congress, when selected countries read papers, followed by discussions, and a list of these is given in Appendix "A." I was appointed chairman of the fourth session on A.B.C. Warfare, and Great Britain had the task of presenting the subject of Atomic Warfare. This was done by Colonel J. H. J. Crosse, late R.A.M.C., who gave a demonstration on a model of the civil defence organization, and its reinforcement by the military, in dealing with the explosion of an atomic bomb on a city.

All papers and discussions were carried on in the three languages—French, English and Spanish.

In addition to the five main sessions there were other papers, demonstrations and exhibits, such as:

(a) A talk was given by Major-General Hume, Chief Surgeon to the United Nations Forces in Japan, on the medical aspects of the war in Korea, and there were many photographs of the war and a display of articles of equipment, both of the United Nations and the enemy.

(b) A paper was read by Professor Ramon, a world-wide authority on immunization against tetanus and other diseases, and a paper on malaria was also given by Sir Gordon Covell of Great Britain.

(c) A French Army field medical company with tents and equipment was laid out—the equivalent of the British Army advanced dressing station.

(d) An exhibition of Military Pharmacy—the French Army makes its own drugs and dressings in its own laboratories and workshops, and there were practical demonstrations of the manufacture of clinical thermometers.

(e) Visit to civilian laboratory firms.

(f) Films on medical subjects.

At the closing session of the Congress the conclusions on each of the five main subjects discussed were adopted, and a copy of these conclusions is given in Appendix A.

The delegates to the Congress attended an interesting ceremony in the courtyard of the Val-de-Grace Military Hospital, when the President of the Republic presented the Legion of Honour on the occasion of the centenary of the Val-de-Grace Hospital and Medical School. There were guards of honour from the cadets of the Military Academy of St. Cyr, picturesque in their cocked hats and swords, and there were large numbers of French medical officers ranked on the steps of the Chapel of the Val-de-Grace, a chapel dedicated by Ann of Austria, the wife of Louis XIII.

The Medical School itself has many interesting associations and memorials to French medical officers who served in all the French campaigns from Napoleonic times.

French hospitality was, as one would expect, most comprehensive. There was a memorable evening at the Opera when a special performance of the ballets "Coppelia" and the "Suite en blanc" were given. The foyer was lined by cuirassiers of the Republican Guard, and it was a colourful spectacle to watch the delegates and their wives, the uniforms of many different countries mingling with the ladies' dresses. On another occasion the delegates were received in the Hotel de Ville by M. Pierre de Gaulle, the Mayor of Paris and the brother of General de Gaulle. Speeches of welcome were made by M. de Gaulle and were replied to, on behalf of the Congress, by Médecin Inspecteur General Jame, the President of the Congress, and by Lieut-General Sir Neil Cantlie. The reception was held in the magnificent salon of the Hotel de Ville and followed by a champagne buffet.

On another day the delegates were conducted round the Chateau of Versailles and the fountains played especially in their honour.

There was a banquet in the Palais Chaillot when over 1,200 sat down to dine. The French Minister of Defence, M. Moch, made the principal speech, and the menu of the banquet was something to remember.

Monsieur Vincent Auriol, President of the French Republic, honoured the heads of the delegations by receiving them at the Élysée.

The Minister of Post, Telegraph and Telephone paid a tribute to military medicine in publishing a special postage stamp, issued from the precincts of Val-de-Grace itself. It reproduces the majestic lines of the dome of its chapel and the profiles of three savants who brought lustre to the college: Antoine Villemin, Zaccharie Roussin and Robert Picque.

The Congress was stimulating and the contacts made with medical officers of so many nations was most interesting. The exchanges of views on so many aspects of military medicine were informative and valuable. The personal contacts made, too, were useful; these do a great deal to foster mutual understanding and goodwill between nations.

INTERNATIONAL COMMITTEE OF MILITARY MEDICINE AND PHARMACY

The International Committee of Military Medicine and Pharmacy consists of the head of the delegation from each country, and the Committee met in several sessions to discuss matters of policy. The main subject discussed was the relationship of the organization to the World Health Organisation in Geneva. There was a representative of the World Health Organisation present at one of these meetings, who put forward certain points which, if agreed to, would, he stated, result in the World Health Organisation acknowledging the status of the International Committee of Military Medicine and Pharmacy. These were unanimously agreed to, and it therefore appears clear that this will now take place. The matter is of importance, as both Great Britain and the U.S.A. have hitherto refrained from subscribing to the organization, until the attitude of the World Health Organisation has been made clear.

Another subject discussed was the attitude of the organization to the World Medical Association. My view here was that there should be no direct representation between the International Committee of Military Medicine and Pharmacy and the World Medical Association because I considered it was a matter for Governments alone to be represented on the World Medical Association. Discussions between the World Medical Association and the International Committee of Military Medicine and Pharmacy had already taken place, and an invitation had been extended by the former to a conference to be held at Stockholm in 1951. It was agreed by a majority of the International Committee of Military Medicine and Pharmacy that the invitation should be accepted, and that the Swedish military medical delegate should attend the conference on behalf of the International Committee of Military Medicine and Pharmacy as an observer. It was decided to circulate a questionnaire to all members of the committee asking for their views on the future relationship between the World Medical Association and the International Committee of Military

Medicine and Pharmacy. My opinion is that there should be no direct relations between the two.

An invitation to attend the next Inter-American Red Cross Conference in Mexico was accepted and the Mexican military medical representative was instructed to attend.

A further subject discussed was the venue of the XIV Congress in 1953, and as a result of the invitation of the Uruguayan delegate, it was accepted that it would be held at Montevideo. The agenda for the XIV Congress was decided and the countries allotted to deal with each item. These are given in Appendix "B." It will be noted that Great Britain is not included.

THE INTERNATIONAL OFFICE OF DOCUMENTATION

This body met at Vichy on June 24 and 25 and discussed two main subjects:

(a) The issue of an *international* card for military medical personnel of all countries, which will afford protection under the Geneva Convention.

(b) The allotment of military medical personnel to provide the medical care for prisoners of war, and their exchange and replacement.

(a) *International Card*.—In theory this is desirable and was agreed to in principle, I believe, by the Geneva Convention of 1950. The discussion confirmed the desirability of having an international card which all countries would recognize as giving full protection to medical personnel. When, however, the practical details were gone into it was found difficult to put into practice, and it was agreed the subject should be further discussed.

(b) *The allotment of medical personnel for prisoners of war, etc.*—Here it was evident that the provisions already made by the Geneva Convention of 1950 had the support of the majority. There was discussion on the number of doctors, nurses and orderlies to be allotted to prisoner-of-war hospitals, and the exchange yearly of medical personnel was suggested. This subject too was referred for further discussion.

Here too, at Vichy, hospitality was by no means forgotten, and there were two sumptuous luncheons given by the Municipality of Vichy on one day, and on another by the Société de Fermières de Vichy, who are the proprietors of the very large and important bathing and curative establishment. We were conducted round the bathing establishment, which has 200 separate cubicles and baths of many kinds with douches and massage. The bottling of the Vichy water was shown and a discourse was given on its benefits. Vichy is crowded with invalids suffering from liver complaints who pass their time drinking Vichy water interspersed by a visit to the baths and a stroll round its very delightful Casino with its lime trees and palms, its bands and concerts.

The delegates were entertained to a performance of ballet given in the Opera and a visit to an international jumping competition, a "Concours Hippique."

APPENDIX A

CONCLUSIONS

MAIN SESSIONS OF THE XIII CONGRESS OF INTERNATIONAL MILITARY MEDICINE AND
PHARMACY

<i>Question</i>	<i>Reporting Country</i>
1. The tactical organization and equipment required for urgent treatment of very large numbers of casualties following an attack on a large population.	Spain France
2. The organization and instruction of personnel of the Medical Corps (regular and reserve) and planning of military medical careers.	Uruguay Mexico France
3. Medical problems peculiar to the air and submarines.	U.S.A. France
4. The medical aspects of defence against atomic, biological and chemical warfare.	Great Britain France
5. The role of military pharmacy in time of war.	Spain France

FIRST QUESTION

Tactical organization of equipment for first aid urgently required in the even of a large influx of wounded following upon a mass attack.

Conclusions

Associating its hopes to those formulated during the XII International Army Medical and Pharmaceutical Congress, the XIII Congress adopted the following conclusions:

(1) In view of the large number of victims, as well as the extent of damage that might result from a mass attack, it is indispensable to provide for the use of all the medical resources available, both personnel and material, in the country, grouped within an adequate organization under one sole command or direction, and prepared during peace-time.

One of the first measures consists in forming auxiliary medical personnel and helpers capable of aiding the health services in their task.

(2) Owing to the imperative need for economy in the matter of "Health Means," this organization must comprise:

- (a) A local health system, founded upon, the dispersal of personnel and equipment distributed, at the outset, at the perimeter of the town.
- (b) A hospital belt comprising mixed hospitals for specialized cases.
- (c) A national health organization on the plan of urgent medical aid, evacuation, and admission to hospital, and for sending reinforcements in personnel and equipment.

(3) Whether permanent, mobile or mixed, this organization must be sufficiently flexible to adapt itself to all circumstances.

(4) The health tactical organization envisaged can only, both here as elsewhere, rest on "surgical selection," the keystone of all hospital or health arrangements.

(5) For fear of a probable and almost immediate absorption of health resources in any one country, it is advisable to establish an international health service capable of giving them prompt aid.

(6) With a view to reducing the number of victims in case of attack by a great force, it is recommended that the population should be educated and that an efficient defence service should be set up, which should be both passive and active.

SECOND QUESTION

Organization of the instruction of the health corps personnel (active and reserve). Planning of the military-medical career.

Conclusions

*The organization of the instruction of the health corps personnel (active and reserve).
Health Corps Troops.*

Regulars

(a) In addition to the physical aptitude, recruiting must demand that the candidate possesses some degree of instruction and a certain moral courage and, if possible, some professional technical knowledge.

(b) In view of war, this regular personnel must take part in periodical manœuvres with the Field Medical Units.

Recruits

Recruits selected intellectually and professionally must undergo military and technical training to be maintained by call-ups, grouping them in the units in which they will serve in time of war.

Officers of the Health Corps.

Doctors, pharmaceutical chemists, dentists, administrative officers, nurses.

Active

The training of an Army medical officer imposes a triple instruction:

Medical—General practitioner with surgical preponderance—later various medical specializations.

Military—Military training common to all elements of the army, later command of units and medical formations.

Administrative—Medicine with regard to military work relative to the aptitude and output of the soldier.

Organization and functioning of Field Medical Service.

Adaptation to the exigencies of total war.

This training could be carried out in an Officers' School for the Medical Corps and could be followed by instruction at the School of Application, which should comprise above all an adaptation of the knowledge acquired in the military environment; it should be maintained by periodic (probationary) courses.

The officer-chemists undergo a training based on the same principles adapted to their particular work.

Officers of the administration must know, in addition to the general administration of Army units, that of medical units, as well as the management and upkeep of medical equipment.

Nurses (or medical orderlies) having obtained an official or legal diploma, particular to each nation, must be assimilated to the rank of officer.

Reserve

In the countries where the duration of military service exceeds one year, the period of medical studies will justify a combination of part of the military service during the course of the university studies, the second part of the service being accomplished as a medical officer, after his studies.

The military training must be complete and solid, and comprise in addition to the military training proper, a preparation for field command.

After the end of the military service, theoretical instruction of a complementary order will be given by means of handbooks and pamphlets.

Practical instruction will be given during the call-up periods effected in the field medical units with equipment, personnel and cadre.

Planning of the military-medical career.

If, in wartime, the service has a duty, it must not be forgotten that in peacetime the Army Medical Service constitutes a career and, as such, it is subject to economic laws of supply and demand.

The maintenance of the human potential, both military and economic, of a nation, demands a worthy health corps.

The training of a worthy health corps, which postulates the amelioration of the standing of the Army medical officer, will only be brought to its best by the grant of autonomy to the Medical Corps Command, an autonomy justified by the technical character of the service.

The improvement in the standing of the Army medical officer should be based upon the following points:

- Scientific interest of the career,
- Special advancement of the Army Corps officers of all ranks,
- Beginning of the career with the rank of Medical Officer-Captain and end of the career three years after combatant officers of the same rank on account of the specialized nature of the work.

THIRD QUESTION

Medical Problems posed by aerial and submarine navigation.

Conclusions

Problems posed by aerial navigation.

The flight of modern aircraft subjects the human organism to the action of adverse factors, against which the present means of protection, whatever their degree of perfection, are only partially efficacious. The practice of habitual flying, if it does not create irreducible lesions at least promotes a state of fatigue which might bring about a lowering of output on the part of pilots.

Prevention consists, in part, in an initial selection where the psychological factors cannot be separated from the somatic or physiological factors.

On account of the importance of this the selection of pilot personnel and psycho-physiological observation of this personnel during their career, should be the subject of special studies.

Problems posed by submarine navigation.

The points which should hold one's attention are as follows:

Factors influencing the efficiency of submarine crews:

- duration and frequency of patrols,
- time spent in immersion,
- length and nature of periods of rest in between.

Habitability factors:

- climatic: rapid variations of pressure in "schnorchell" course: temperature, humidity, concentration in CO_2 , possible infiltrations of carbon monoxide,
- hygienic: food rations, noise, discomfort,
- morals: monotony, success of missions, fatigue due to fighting.

Manifestation, under certain conditions, of syndromes of fatigue predominantly psychological.

Measures of protection:

- Limitation of the frequency of cruises, institution of rest centres in the open air.
- Strict selection and training of crew, to eliminate subjects showing neuro-vegetative or psychological instability.
- Development of means of protection, in particular efficient air-conditioning of the interior atmosphere,
- Adaptation of the rhythm of the crews' watches to the normal nyctohemeral rhythm.

The salvage of the crew seems somewhat illusory beyond some forty metres of depth. The present tendency is to use free ascension with a buoy which affords a high speed in rising.

FOURTH QUESTION

Medical aspects of defence against atomic, bacteriological and chemical warfare.

Conclusions

It is indispensable to establish special services for defence against A.B.C. warfare, first of all by organizing research laboratories on biological and chemical agents. From this point of view, these researches must be continued in a steady manner with a view to discovering and producing preventive and adequate therapeutic measures.

Therapeutic equipment must be ready and stored in sufficient quantities to ensure the care of the whole population in wartime.

It is desirable that all the population should receive special advice with regard to means to be employed to forearm themselves against the dangers of A.B.C. warfare.

Every special service for defence against A.B.C. warfare must, in case of emergency, be reinforced by the Army services.

FIFTH QUESTION

Present conception of the functions of the military pharmacist in time of war.

Conclusions

The conception of the part played by the pharmacist in wartime answers to the conclusions of the X International Army Medical and Pharmaceutical Congress, with the arrangements mentioned below:

When they have not already been introduced in their armies, the adoption of the following measures is recommended to the Medical Services.

Considering that Pharmacy has not reached the same degree of development in all countries and that therefore the application of these conclusions might sometimes meet with difficulties, it is requested that at the XIV International Congress, with the aim of obtaining reciprocal information, each Medical Service should be good enough to say and explain, whether the following recommendations have been carried out or not:

(1) It is to be hoped that there is a *Medical Service* in all Armies, a *pharmaceutical and chemical service*, in the care of military pharmacists, and eventually a *biological service* in the hands of specialists prepared for these functions.

(2) The principal prerogatives of the pharmaceutical, chemical and biological services are the following: purchase, manufacture, preparation and delivery of drugs, medicaments and medical equipment of all kinds; direction of laboratories for chemical analyses; chemical and toxicological research; aid to be given in the sphere of hygiene, prophylaxy, etc.

(3) Consequently, in wartime, as elsewhere in time of peace, every depot for "drugs, medicaments and medical equipment," must necessarily be under the orders of a military pharmacist.

APPENDIX B

PROPOSED AGENDA FOR THE XIV CONGRESS OF INTERNATIONAL MILITARY MEDICINE AND PHARMACY

SECTION OF MEDICINE:

Question

- | | <i>Reporting Country</i> |
|---|--------------------------|
| 1. Military medicine regarded as a speciality. | Uruguay
U.S.A. |
| 2. Medical organization in time of war. Co-ordination of the civil and military Medical Services. Preparation in time of peace. | Yugoslavia
Uruguay |
| 3. The role of the Medical Services in high mountain warfare. | Switzerland
Norway |
| 4. The modern conception of forward surgical treatment of burns and wounds. | Benelux Countries |

SECTION OF PHARMACY:

Organization and prerogatives of the military pharmaceutical corps and instruction of reserve personnel.	Brazil Uruguay
--	-------------------

DENTAL SECTION:

Draft of a dental card index on a standard model, enabling one to follow the dental health of the individual during military service, and enabling him to be identified subsequently.	Canada Uruguay
---	-------------------

The following Officers attended this Congress:

Royal Army Medical Corps

Lieut.-General Sir Neil Cantlie.

Colonel J. H. J. Crosse.

Major A. R. T. Lundie.

B.M.A. Observer

Major-General J. C. Dowse.

Correspondence

HARLEY STREET,
LONDON, W.1.
July 4, 1951.

DEAR "EDITOR,"

I feel I must write and congratulate you on the June 1951 Journal. It seems such a happy blend of subjects. I enjoyed particularly extracts from *Punch* of course, and was pleased to see that you fitted in both the articles by Hadfield and Heber, who are in my Territorial Unit, and Feiwei, who . . .

Yours sincerely,

G. B. MITCHELL-HEGGS.

DEPARTMENT OF ARMY HEALTH,
ROYAL ARMY MEDICAL COLLEGE,
MILLBANK, LONDON, S.W.1.
July 19, 1951.

SOLDIERS' LOADS

SIR,

The article by Lippold and Naylor in your March number has brought me a letter from a distant place. The writer refers to his early interest and efforts in the matter of load carrying by the soldier. His comments are literally light from the pre-electronic past on an old problem and have therefore the interest which intimate personal experience alone can give.

"As you know we were not only employed as investigators but as subjects of the experiments.

We had, therefore, not only to assess the energy 'expenditure,' but the subjective symptoms which accompanied the expenditure when various percentages of the body-weight were carried, and it is on these that I would like to comment.

One set of experiments which were carried out on a tiled floored corridor in a university building consisted of:

- (1) Marching with pack in high (scapular) position.
- (2) Carrying weights from 25 to 60 per cent naked body-weight.
- (3) Marching to exhaustion with ten minutes' halt every hour.
- (4) Marching to exhaustion without halts.

If I remember rightly these experiments were carried out during a warm summer when we were both physically in training. We marched on alternate days, the one not so employed kept a record by stop watch of the time taken to each circuit which gave, along with the number of steps taken, the only graphic record of fatigue that we obtained.

It was very noticeable, with myself especially, that fatigue as represented by these two factors rose much more rapidly with the higher percentage loads.

This increasing fatigue was accompanied by:

- (1) Slowing down of march.
- (2) Shorter steps.
- (3) Broadening of base of progression.
- (4) Greater incline of the torso.
- (5) Increased staggering.
- (6) Increased load and pressure pains.

The posture invariably became more and more inclined and one grasped the pack straps to ease the drag on the shoulders and in the later stage with heavy loads even trying to do this by lifting the pack behind with both hands.

The distance for outdoors was never very great; up to 10 miles or so but it must be remembered that the conditions under which we marched were not conducive to a great effort, i.e. a dark unventilated corridor with a hard floor and both of us wearing heavy leather footwear.

By far the most distressing symptom was the acute pain over the latissimus dorsi which with the heavier weight became almost unbearable and did much to hasten our fatigue. But, once relieved of the weight and having given a shrug to one's shoulders, the pain soon disappeared. The only other major subjective symptom was injury to our feet due to functional causes. The effects of these were cumulative. On the first day little was felt while marching, but soon after lameness showed itself and on each subsequent march the condition got worse, till finally we started more or less crippled.

I can think of nothing which will accentuate fatigue more than blistered and sore feet.

Further comments:

(1) With the scapular position of the pack there is an increasing desire, becoming almost a demand with the heavier weights, to raise the load as high as possible and so relieve the drag on the shoulder-straps and get the load up under the nape of the neck. I have no doubt in my own mind that the higher the load the better for comfort. Such a position would be unpracticable in active exercise especially when moving on all fours, when it would cause a great deal of inconvenience if not injury to the soldier.

I have since coming here carried a total of 40 tons on my shoulders to a site 100 yards distant and 30 ft. uphill. The materials have been carried in sacks and, as regards my own preferences, I can carry my maximum weight much more comfortably when it is lying across the nape of my neck. Slung over one or other shoulder at once produces pressure symptoms.

(2) Of hip-carriage I have only the experience of the rucksack, the girdle of which rested on the pelvis.

It is preferable to the shoulder carriage as the Authors point out but on one condition only, that its stability does not depend on fixture by a tight waistbelt. With scapular carriage of the main items of the load a balance was attempted by attaching some of the weight (ammunition pouches) to the frontage so that there was less tendency for the back weight to pull up the belt in front. A well-balanced load should not require the waistbelt to be so tightened that the whole equipment is kept in place.

Wherever one gets weight carrying one will get restriction in thoracic breathing and this is exaggerated the more and the tighter the straps are, especially if they are crossed.

Vital capacity in thoracic breathing especially upper thoracic is not so disabling as restriction in abdominal breathing when active exercise, i.e. doubling, etc., is being performed, for most of the extra respiratory demand falls on the lower chest or upper abdomen. Constriction of the lower chest or upper abdomen should be definitely avoided. There is a point I think which should be considered when deciding on the two positions. Agreed that the low position is more comfortable and therefore less fatiguing and leads to a more upright carriage; how does it meet the case when a soldier has to jump ditches, etc., or make a quick forward movement keeping low for cover?

I should imagine the low position would tend to hinder a forward movement in view of the tendency to keep the back straight which is antagonistic to these forms of exercise.

During the late war a jacket strengthened in parts to take the strain of the equipment which became part and parcel of it was devised—weights fore and aft were balanced and weight was evenly distributed—it had many good points and was subjected to field trials. It was not accepted. However the idea should be looked into again.

(3) I cannot believe it is normal to walk absolutely vertical. When one sees the natural pedestrian—the shepherd or deer-stalker on the hill or on the level—one notices they all take long strides and stoop slightly even when unencumbered and the older one gets the more one stoops to a load presumably because one finds it easier and less fatiguing. Surely the upright is a military fashion only?

I understand that a slight incline of the body with a forward position of the centre of gravity was a help when one was in motion; in fact the 'march en flexion' of the French Army has often been advocated.

The faster one walks the more one inclines and when one runs the inclination is increased except of course in a short sprint where the whole frame is held more or less rigid for the leg and arm effort. Lastly I must again repeat that fatigue is much more liable to come on early with feet troubles than mere weight carrying but one must not forget the psychological factors also.

(4) I would strongly advise that feet symptoms should be taken into account in all tests carried out. Their effects may be much more crippling and much more lasting than pressure pains or even gross fatigue."

As the writers of the article and some of your more privileged readers will know, the desire to "get the load up under the nape of the neck" has been considered in work subsequent to that described in the article which only goes to show that "all wisdom is not new wisdom."

Yours truly,

A. E. CAMPBELL,
Colonel,
Professor of Army Health.

SOLDIERS' LOADS

44/Med.
July 4, 1951.

Director of Medical Services,
Headquarters,
British Army of the Rhine.

Ref. the letter forwarded on this subject under our even number of June 13, 1951. (See Vol. xcvi No. 2. Correspondence.)

(1) Attached is a photograph of an American soldier in Korea published in the *Welt am Sonntag* of July 1, 1951.

(2) It is an excellent demonstration of load carrying in a manner similar to that described in the latter half of the above-mentioned letter.

(3) Identical points to notice are:

(a) No equipment bouncing on the hips,

- (b) The main weight is carried high on the back,
- (c) Addition equipment is piled on the pack,



Translation of Caption

DOES HE COME HOME SOON?

Already the heat is worrying them, but they all hope perhaps, that a quick armistice will come soon.

- (d) Use is probably being made of the strap of the rifle to counterbalance the heavy weight behind,
- (e) Ammunition is carried in the form of a bandolier.

F. G. NEILD,
Major, R.A.M.C.
for A.D.M.S. H.Q. British Troops BERLIN.



Matters of Interest

SUBJECT: ARMY HEALTH SPECIALISTS

THE following academic successes have recently been obtained by Army Health Specialists:

Major M. M. Lewis,	M.D. (State Medicine) Bristol (July 1951)
Major D. H. D. Burbridge,	D.P.H.(London) June 1951
Major T. W. Carrick,	D.P.H.(London) June 1951
Major G. M. Curtois,	D.P.H.(London) June 1951
Major B. Devlin,	D.P.H.(Liverpool) June 1951
Major T. A. Pace,	C.P.H.(Eng.) June 1951
Major E. D. H. Williams,	C.P.H.(Eng.) June 1951

THE following have arrived from abroad and have been posted for duties in the U.K.

Brigadier E. P. N. Creagh, who is posted as D.D.M.S. Scottish Command; T. Brigadier W. S. Martin, who is posted as A.D.M.S. Headquarters Highland District; Colonel P. F. Palmer, who is now posted as A.D.M.S. Headquarters Highland District; Colonel P. F. Franklin has been posted from Headquarters, Highland District, as A.D.M.S. Headquarters Catterick and Northumbrian District.

NOTES FROM A.M.D.

BY OUR SPECIAL CORRESPONDENT

MAJOR D. H. R. MONTGOMERY, M.C., R.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services in Korea. The President of the U.S.A. has conferred the decoration of Legion of Merit, Degree of Officer, upon Lieut.-Colonel G. T. Hankey, O.B.E., T.D., R.A.M.C., and the King of Denmark has conferred the decoration of Commander of the Order of Dannebrog, 2nd Class, upon Lieut.-Colonel R. W. Scott, O.B.E., R.A.M.C. Both these decorations are in recognition of distinguished service in the cause of the Allies during the 1939-45 War. These awards were made some time ago, but certain formalities culminating in the granting of permission to wear the decorations have apparently delayed the formal announcement.

Some people have a natural antipathy to examinations. For others it is an acquired distaste. We ourselves were obliged to present ourselves for our finals so many times that we decided that we had been examined enough for a lifetime. It is therefore with unstinted admiration that we record the accomplishment of Major M. M. Lewis, R.A.M.C., who has obtained the following distinctions: M.D. in State Medicine, D.T.M.&H., D.P.H. and D.I.H. He was also awarded the Consultants' Prize for the period 1949-50.

As we painstakingly pursue these one-finger exercises on our typewriter, the news of further examination successes reaches us. This concerns the Leishman Prize, 1950. The prize for the best written examination for Part "B" Dispensing has been awarded to Staff-Serjeant E. A. Marshall, R.A.M.C., and the prize for the best written examination for a Class I trade other than dispensing goes to Corporal H. W. North, R.A.M.C., (A.F.C. 344). In addition the following non-commissioned officers were highly commended: Corporal F. Smith, R.A.M.C. (Nursing Orderly Class I), Serjeant T. Hughes, R.A.M.C. (Clerk Class I) and Serjeant J. D. Hoskins, R.A.M.C. (Hygiene Assistant Class I).

Colonel J. H. J. Crosse, *O.B.E.*, has been awarded the Leishman Memorial Prize for 1950, and Major H. J. A. Richards, R.A.M.C., of the Army School of Health, has been awarded the Parkes Memorial Prize for 1950.

Every time we pick up an Army List we find that some mysterious person has ticked off in red pencil the names of those who have retired or have been promoted. We have never met an officer who was prepared to admit to this practice, though many have condemned it. We hold no strong views on the matter and we might even insert a few ticks ourselves if we could ever get hold of an Army List which has not already been marked. Be that as it may, we now offer to the ubiquitous, anonymous wielders of the red pencil the latest information we have concerning promotions. Brigadier (T/Maj.-Gen.) F. R. H. Mollan to be Major-General and Colonel E. P. N. Creagh to be Brigadier, both promotions taking effect on June 26, 1951; Lieut.-Colonel V. C. Verbi to be Colonel July 15, 1951; Major R. A. Smart to be Lieut.-Colonel July 24, 1951, and Captain D. Gill to be Major May 8, 1951. Captain (Qr.-Mr.) R. J. Buggy was promoted Major (Qr.-Mr.) with effect from April 20, 1951.

An item of news from the Territorial Army is that Colonel W. Graham, *O.B.E.*, *T.D.*, R.A.M.C. (T.A.), has been appointed Honorary Colonel of 7 (Western) General Hospital.

Recalling our undertaking last month to discover where all senior officers of the Corps were serving, we made application for leave of absence to travel round Europe. We ask our readers to imagine our dismay when we were more or less courteously informed that we would not be given leave to go abroad at public expense—not even in spirit. Eventually we shrugged off our feelings of despondency and taking down a school atlas which one of our daughters had conveniently left on top of the clock, we drew a line across Europe from London to Hamburg and resolved to work steadily downwards.

At Hamburg the A.D.M.S. is Colonel G. W. Shaw, and Lieut.-Colonel J. J. O'Connell commands the hospital. Moving downwards we come to Colonel J. W. Eames who is A.D.M.S. 7 Armoured Division. Colonel T. J. Ryan is O.C. British Military Hospital, Hanover, and Lieut.-Colonel R. E. Waterston is Officer i/c Surgical Division there. At Berlin, Colonel P. J. Richards com-

bines the appointments of A.D.M.S. British Troops in Berlin and O.C. Military Hospital. Next we strike Bad Oeynhausen, where H.Q. B.A.O.R. is situated. Here are the D.M.S., Major-General R. D. Cameron, the D.D.M.S., Colonel L. T. Furnivall, the A.D.S.M.S., Lieut.-Colonels E. H. P. Lassen and W. Stewart and the D.D.A.H., Colonel C. V. MacNamara. Based on the headquarters of the command are the A.D.P., Lieut.-Colonel D. W. Bell (who is normally at Hamburg), the Consulting Surgeon, Colonel J. Huston, the Consulting Physician, Colonel R. A. Bennett, and the Command Psychiatrist, Lieut.-Colonel J. T. Robinson. At H.Q. Lubbecke Area Lieut.-Colonel E. G. Dalziel is A.D.M.S.

Moving south-west, we arrive at H.Q. 2 Infantry Division with Colonel G. A. Walmsley as A.D.M.S. and Lieut.-Colonel C. W. Maisey as D.A.D.A.H. The British Military Hospital, Iserlohn, is commanded by Lieut.-Colonel W. F. L. Fava and the ophthalmologist is Lieut.-Colonel P. H. Ball, O.C. British Military Hospital, Wuppertal, is Lieut.-Colonel J. T. Smyth.

With an acute respect for the rules regarding security we mention the names of Brigadier D. Bluett, Colonel J. C. Barnetson, Lieut.-Colonels E. J. Pryn, J. G. Black, D. A. O. Wilson, J. O'Connell, J. W. MacIver and R. L. Whittaker. These officers hold various appointments in field formations and units. With immense discretion we leave our readers to exercises in deduction.

Moving considerably down the map, across the American Zone of Germany, we come to Austria, where Colonel W. A. R. Ross is D.D.M.S. British Troops in Austria. At Klagenfurt, Lieut.-Colonel R. Johnston commands the British Military Hospital. The Advisers in Medicine and Surgery (we believe these appointments are unique) are respectively Lieut.-Colonel J. A. Carmichael and Lieut.-Colonel D. Wright. Judging by pre-war musical shows, Lieut.-Colonel D. S. Cochran has an enviable appointment—he commands the British Military Hospital in Vienna.

In Trieste, Lieut.-Colonel J. C. Babbage is A.D.M.S. BETFOR and O.C. British Military Hospital.

Finally our pointer swings round to Gibraltar (carefully missing Greece, which has a British Military Mission but which is administered by M.E.L.F. and will therefore be considered on a future occasion). At Gibraltar the A.D.M.S. is Colonel K. Fletcher-Barrett, who also carries out the duties of O.C. Military Hospital. Lieut.-Colonel R. S. Lyburn is responsible for obstetrics and Lieut.-Colonel G. C. Dansey-Browning is the Specialist in Ophthalmology.

CONSULTANTS' DINNER

THIS Annual Dinner was held at the Headquarter Mess on July 17.

There was a very good attendance of wartime consultants who came from as far afield as Belfast and Edinburgh. This is an annual event which has become a very popular one, and this year was voted by all to be the most successful dinner which had yet been held. The atmosphere of comradeship and good

fellowship during the evening was helped by a new arrangement of the dining tables, which it is hoped will be followed on future occasions.

After an excellent dinner and music from the string band of the Grenadier Guards, the usual toasts of "The King" and our "Colonel-in-Chief" were drunk. Then the D.G. spoke and welcomed the consultants once more to the Mess. He said that the Corps was gratified and flattered that so many consultants still continued to come to the Annual Dinner. The chief reason he knew was to meet old comrades who had served together in the war, but he also felt the dinner showed that the consultants still had an interest in the Corps which they had served so well during the war, and he felt he could take up a few minutes of their time giving a review of the present state of the Corps and its problems. The D.G. said that this time last year there were three main problems, which were the subject of criticism by the B.M.A.: the delay in the revision of the rates of pay; the ban on retirement of medical and dental officers, where they were treated differently from all other officers of the Army; and at the same time the employment of civilians on much higher rates of pay than were granted to regular officers.

Of these three problems, the first had been met by the new rates of pay which came into force on September 1, 1950; the ban on retirement of medical and dental officers had been raised and they were now on an equal footing with all other officers in the Army; the employment of civilians was still necessary in order to prevent a breakdown of certain services, especially surgery.

The D.G. then went on to review the shortages of medical officers in the Corps and said that there were serious deficiencies in both the permanent regular and short service establishments. These shortages were apt to be camouflaged by the large number of national service officers who were serving, but the run outs of national service officers were now exceeding the intakes, and by 1952 it was estimated there would be a deficiency of 300, and by 1953 a deficiency of 600 officers. The regular R.A.M.C. itself was becoming each year an older Corps, 57 per cent of the officers were now over 40 years of age, and there were only 31 officers in the Corps under the age of 35.

The D.G. then briefly reviewed the position with regard to the Q.A.R.A.N.C. officers, and other ranks, and then referred to the question of specialist training and the plan which was in hand to have certain military hospitals recognized by the Royal Colleges for the purpose of training specialists. Netley had already been recognized as a hospital for study for the Diploma of Psychological Medicine.

He finally asked for the goodwill and help of the consultants in overcoming the difficulties in which the Corps was placed. When everyone's son was compelled to serve as a national service man in one of the Forces, the standard of medical care was everyone's concern too, and it would be deplorable if the difficulties which we would soon be experiencing were not overcome.

The D.G. then announced that for the first time the prize so generously given by the wartime consultants had been won by Major M. M. Lewis.

R.A.M.C., for the paper entitled "A Military Hygienist's Reflections on Mental Health." It was a happy occasion that Major Lewis himself was present at the dinner and he congratulated the winner on handing him a cheque for £40. Major Lewis replied in a few well-chosen words.

The toast of the regular R.A.M.C. was proposed by Major-General Sir Heneage Ogilvie who said that many of them looked back to the war as the happiest period of their lives due to that comradeship that they all experienced and their good relationship with the regular R.A.M.C. He paid tribute to the present D.G. who, he said, was a worthy successor of previous D.G.s.

Brigadier Sir Harold Gillies finally toasted the D.G. on the last occasion on which he would preside at the Consultants' Dinner and the company sang "For He's A Jolly Good Fellow."

The following is the list of the dining members present:

Lieut.-Colonel Sir Neil Cantlie, Major-General Sir H. L. Tidy, Major-General Sir Heneage Ogilvie, Brigadier W. R. D. Hamilton, Brigadier A. G. Harsant, Brigadier Sir L. Whitby, Colonel Sir J. Walton, Brigadier J. S. K. Boyd, Major-General D. C. Monro, Brigadier Sir H. Gillies, Brigadier St. J. D. Buxton, Brigadier H. C. Edwards, Brigadier M. F. Nicholls, Colonel Julian Taylor, Brigadier P. Wiles, Brigadier M. L. Rosenheim, Brigadier J. Bruce, Brigadier A. Headley Whyte, Major-General T. Young, Brigadier M. L. Formby, Brigadier F. Howitt, Colonel A. N. T. Meneces, Brigadier T. E. Osmond, Brigadier W. Ritchie Russell, Lieut.-Colonel C. Bull, Colonel J. P. Douglas, Brigadier R. Lees, Lieut.-Colonel A. B. Carter, Brigadier A. Sachs, Brigadier B. Schlesinger, Brigadier I. Fraser, Colonel A. E. Campbell, Lieut.-Colonel R. C. Langford, Major-General F. R. H. Mollan, Major-General Sir A. Stott, Brigadier G. W. B. James, Major-General R. Priest, Brigadier D. C. Bowie, Brigadier J. C. Hawkesley, Brigadier R. M. B. Mackenna, Major-General J. Wren, Major-General E. B. Marsh, Colonel H. Yellowlees, Colonel G. P. Crowden, Brigadier R. J. Rosie, Brigadier C. Donald, Brigadier E. A. Bennet, Brigadier D. B. McGrigor, Major-General F. Harris, Brigadier Sir A. Porritt, Colonel Sir H. Cairns, Colonel C. M. Marsden, Brigadier Sidney Smith, Brigadier R. Marnham, Brigadier R. R. Bomford, Colonel A. Brazenor, Colonel F. J. O'Meara, Brigadier V. W. Dix, Brigadier I. C. Hunt, Brigadier A. S. Daly, Colonel E. H. Hall, Brigadier H. K. Ashworth, Lieut.-Colonel K. F. Stephens, Lieut.-Colonel J. A. MacDougall, Major M. M. Lewis, Major J. B. Neal, Major H. W. Peck.

HEADQUARTER OFFICERS' MESS, ROYAL ARMY MEDICAL CORPS,
MILLBANK, LONDON, S.W.1.

August 3, 1951

COMFORTS FOR FORCES IN KOREA

At the request of the Director-General, Army Medical Services, a Committee is being set up at this Headquarter Mess to deal with the supply of comforts for British Medical Units in Korea.

Donations of money in the first instance and of books (paper back) and magazines would be very welcome. Details of other comforts required have been requested and will be circulated to all addresses when received.

All distributions will be centralized at this Mess, to which donations in money or books should be forwarded. The Committee will utilize any financial help received in purchasing suitable comforts and knitting wool.

It is requested that the attention of all ranks of the R.A.M.C. be drawn to this appeal as soon as possible, as it is essential that a start be made with the supply of comforts before the winter season.

SOME MEDICAL ASPECTS OF KOREA

I.—CASUALTY EVACUATION



The Australian Military History photographer has caught a true United Nations flavour in this picture of the evacuation by helicopter of a casualty. An American helicopter pilot helps an Indian stretcher bearer move a wounded Australian into the ambulance aircraft.—Public Relations Section, H.Q., B.C.O.F., Japan.

II.—A MEDICAL MEETING



The D.G.M.S. Royal Australian Army Medical Services, during one of his periodical visits to the Korean Front, calls in at 26 Brigade Headquarters. Senior Commonwealth Medical Officers with the D.G. are the United Kingdom D.M.S., the A.D.M.S. of the British Commonwealth Division, and the A.D.M.S., B.C.O.F.—*Public Relations Section, H.Q., B.C.O.F., Japan.*

Obituary
Lieut.-Colonel JOHN ROSS LLOYD

IN Milford, Surrey, on July 27, 1951, Lieut.-Colonel John Ross Lloyd, R.A.M.C., Retired.

Born July 19, 1881, he took the M.R.C.S. and L.R.C.P. London in 1907 and was appointed Lieutenant R.A.M.C. July 29 the same year.

Promoted Captain January 29, 1911, Major July 29, 1919, and Lieut.-Colonel March 31, 1932, he retired August 3, 1933.

He served with the Aden Field Force from July to September 1915 and in France from April 1917 till the end of the war, being awarded the 1914-15 Star, British War and Victory Medals.

J. G. F.

Extracts from the "London Gazette"

A *Supplement* to the *London Gazette* has announced the following awards:

Four Clasps to the Territorial Efficiency Decoration.—Majors (Honorary Lieutenant-Colonels) R. S. Creed, *T.D.*, and C. W. Healey, *M.C.*, *T.D.*, R.A.M.C.

Three Clasps to the Territorial Efficiency Decoration.—Honorary Lieutenant-Colonel P. Hayes, *T.D.*, R.A.M.C., retired.

Two Clasps to the Territorial Efficiency Decoration.—Colonel C. H. Budd, *M.C.*, *T.D.*, R.A.M.C., retired (honorary colonel of a Supplementary Reserve Unit); Lieutenant-Colonel T. H. Wilson, *O.B.E.*, *T.D.*, Major H. B. Trumper, *T.D.*, and Captain J. D. A. Gray, *T.D.*, R.A.M.C.

First Clasp to the Territorial Efficiency Decoration.—Major (Honorary Lieutenant-Colonel) E. M. R. Frazer, *T.D.*, R.A.M.C.

Territorial Efficiency Decoration and First Clasp.—Major A. Chambers, R.A.M.C.

Territorial Efficiency Decoration.—Major (Honorary Lieutenant-Colonel) J. A. W. Segerdal and Captain (Honorary Major) P. D. C. Kinmont, *M.B.E.*, R.A.M.C.

Review

THE HELL BOMB. By William L. Lawrence. 1951. Pp. 198. London: Hollis and Carter.

The book is easily read, it is a good example of American journalism and not a treatise on advanced nuclear physics. Besides presenting in simple terms the case for believing that a "super bomb" is possible and describing what such a weapon could do, there is an interesting account of the abortive attempts to secure international control of atomic weapons. There is a short appendix which may help to make the uninitiated feel less lost in our brave new world where most of the physics seems to bear so little relation to that taught in preparation for the first M.B.

A. L.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s., payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

Journal

OF

THE

Royal Army



Medical Corps

ISSUED

MONTHLY

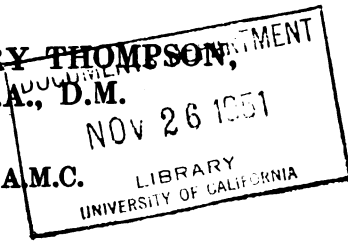
EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS



	PAGE		PAGE
ORIGINAL COMMUNICATIONS		Some Observations on the Total and Differential Leucocyte Counts in Adult Male East African Natives.	
Sub Typhus in Korea. By Lieutenant A. D. MUNRO-FAURE, M.A.Oxon., B.M., B.Ch.Oxon., R.A.M.C., Captain R. ANDREW, M.R.C.S.Eng., L.R.C.P. Lond., R.A.M.C., Captain G. A. K. MISSEN, M.A.Oxon., B.M., B.Ch.Oxon., R.A.M.C., and Lieut.-Colonel John Mackay-Dick, M.B.Edin., F.R.C.P.Edin., R.A.M.C.	227	By Lieut.-Colonel R. M. JOHNSTONE, M.C., M.A., M.B., Ch.B., F.R.C.P.E., R.A.M.C.	251
Health and the Man in the Ranks. By Captain J. SLOAN, R.A.M.C.	230	The Armed Forces as a Career for Doctors. By Lieut.-Colonel E. A. SMYTH, M.B., M.Ch.Orth., F.R.C.S.I., R.A.M.C.	268
Criticism of Military Psychiatry in the Second World War. By Captain H. J. C. J. L'ETANG, B.A., B.M., B.Ch., R.A.M.C.(T.A.)	236	Jungle Medicine. By DEREK TACCHI	274
Experiments with the First Field Dressing. By Major P. W. KIPPAX, B.Sc., M.B., Ch.B., R.A.M.C., and E. D. GOODE	245	AT RANDOM	
		A Services Section, British Medical Association	278
		TRAVEL AND HISTORY	279
		CLINICAL AND OTHER NOTES	291
		CORRESPONDENCE	297
		MATTERS OF INTEREST	299
		REVIEWS	309
		OBITUARY	311
		NOTICES	314



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET • LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : " Instruments, Wesdo, London "

When writing advertisers please mention "Journal of the R.A.M.C."

Authors are alone responsible for the statements made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

SCRUB TYPHUS IN KOREA

BY

Lieutenant A. D. MUNRO-FAURE, M.A.Oxon., B.M., B.Ch.Oxon.

Royal Army Medical Corps

Captain R. ANDREW, M.R.C.S.Eng., Captain G. A. K. MISSEN, M.A.Oxon.,
L.R.C.P.Lond. B.M., B.Ch.Oxon.

Royal Army Medical Corps

Junior Medical Specialist

Royal Army Medical Corps

Pathologist

AND

Lieutenant-Colonel JOHN MACKAY-DICK, M.B.Edin., F.R.C.P.Edin.

Royal Army Medical Corps

Senior Medical Specialist

From Medical Division, B.C.O.F./29 General Hospital

(Received for publication by the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS on
August 2, 1951)

We describe briefly two straightforward cases of scrub typhus fever contracted in Korea. Both cases were diagnosed on clinical grounds on admission to B.C.O.F./29 General Hospital and the diagnosis in each case was confirmed by serological reactions. However, we present these cases for publication because we are led to believe that scrub typhus has never been described in Korea and we feel that it should be placed on record that the first cases reported from Korea were diagnosed by officers of the Royal Army Medical Corps, B.C.O.F./29 General Hospital, British Commonwealth Forces, Korea.

Case 1.—A 20-year-old soldier.

P.H.—Asthma and bronchitis from infancy to age of 12 years. Appendicectomy for acute appendicitis in June 1950, remained in hospital for ten weeks following operation.

H.P.C.—Reported sick 15.6.51 with a five-day history of feverishness, headache (chiefly orbital), malaise and increasing lassitude. Examined at a forward unit. T. 104 F. No meningism. Occasional rhonchus in chest. B.P. 115/72. Liver and spleen impalpable.

W.B.C. 5,800 with normal differential. Admitted to hospital in Korea on 16.6.51. When examined on 17.6.51, T. 98.4° F.; râles and rhonchi present in chest; nil else noted. Chest X-ray negative. W.B.C. 4,350 with normal differential. Given some sulphonamides, penicillin and streptomycin. During the next four days temperature fluctuated between 99° and 104.5° F. Headache remained with some cough but no localized symptoms. Nil noted except rhonchi in chest.

Admitted to B.C.O.F./29 General Hospital at 2300 hours, 21.6.51, with provisional diagnosis (1) Acute asthmatic bronchitis; (2) acute rheumatic fever. Symptoms on admission—extreme weakness, total anorexia, very dark watery motions for three days, pains in back, knee and calves, slight cough and slight headache.

On Examination.—T. 103° F. P. 110. R. 32. Extreme muscular weakness. Slight mental confusion and deafness. No rash. Eschar present on posterior fold of left axilla—1.5 cm. diameter with livid rolled margin and black necrotic centre. (*Patient stated that he first noted this sore at about the time he fell ill.*) C.N.S. normal except for muscular weakness. Throat clear. Left axillary glands enlarged and tender—also glands in left lower neck. Considerable clinical enlargement of heart. Sounds almost inaudible. B.P. 95/60. No localizing signs in chest, but scattered fine râles and sibilii, mostly at the bases. Tender under left costal margin but spleen not felt. Urine—moderate albuminuria—slight glycosuria.

Treatment and Progress.—A diagnosis of scrub typhus was tentatively made and a course of chloramphenicol started at once (3 grammes loading dose and 0.75 gramme six hourly). On 23.6.51 (two days after admission) the temperature had fallen to 99° F. but B.P. was 85/55; patchy bronchopneumonia was evident and he appeared to have carditis. A course of aureomycin was started in addition to the chloramphenicol (1 gramme loading dose and 0.5 gramme six hourly). On 24.6.51 (three days after admission) he was afebrile and remained so. His pneumonia resolved rapidly and by 26.6.51 his B.P. was 112/75. His convalescence progressed satisfactorily and he has now been evacuated to England by air.

Laboratory Investigations.—W.B.C. (22.6.51) 6,400—normal differential. Urine (22.6.51) showed plentiful granular casts on microscopy; *Proteus vulgaris* isolated from culture.

Weil-Felix Reactions.—

		Day of disease:.....16.....28	
Proteus OX2	...	1 in 80	1 in 80
Proteus OX19	...	1 in 320	1 in 80
Proteus OXK	...	1 in 2,560	1 in 10,240 (at least)

Case 2.—A 19-year-old soldier.

P.H.—No serious illnesses.

H.P.C.—Reported sick 11.6.51 with a three-day history of anorexia, malaise, vomiting of all food and constipation. Examined at a forward unit. T. 100° F. P. 90. Right inguinal glands enlarged and tender; no primary focus of sepsis seen. From 11.6.51 to 21.6.51 the patient remained in hospital in Korea. During this period he is stated to have had a continuous fever increasing from 101° to 105° F., and to have developed a rash on the abdomen (day of disease not known). This was of the "rose-spot" type, and spread rapidly over the trunk, face and proximal parts of the limbs. W.B.C. was 8,700 with 4,800 polymorphs and 3,500 lymphocytes; numerous granular casts were seen on microscopy of the urine. Rickettsial disease was suspected and treatment with aureomycin instituted; dosage given is not known.

Admitted to B.C.O.F./29 General Hospital at 2200 hours 23.6.51 (fifteenth day of disease). He complained of extreme weakness and slight frontal headache, but there were no localizing symptoms. On direct questioning, he admitted that he had had an "insect bite behind the right knee at about the time his illness started.

On Examination.—T. 99·4° F. P. 104. R. 23. Slight deafness and slight mental confusion. Brownish macular staining of skin over trunk. *Healed eschar in right popliteal fossa with rolled edge and central pit.* Extreme muscular weakness. Some difficulty in accommodation; eyes otherwise normal. Nose and throat normal. Tongue lightly furred. Heart clinically enlarged; apex beat in sixth space 5 in. from mid-line. B.P. 130/70. Chest clear. Liver and spleen not felt. Right inguinal glands enlarged and slightly tender; other glands within normal limits. Muscle tone low. Nervous system normal. Urine—slight albuminuria but no glycosuria.

Treatment and Progress.—A clinical diagnosis of scrub typhus was made. As he was slightly febrile and the aureomycin dosage he had received was not known, a 6 grammes course of chloramphenicol was started at once (2 grammes loading dose and 0·5 gramme four-hourly). Within thirty-six hours he was afebrile and the apex beat had come in to 3 in. from the mid-line in the sixth space.

During the three weeks he has been here, his general condition has been slowly improving. His mental state now appears normal and the deafness has disappeared. The difficulty of accommodation remains and he is not allowed to read or write. His weight is 120 lb.; prior to illness it was 134 lb. Hæmoglobin now 12·5 grammes/100 ml. On admission he was so weak that he was unable to hold a spoon; now he can sit up easily and is performing leg exercises. Feeding remains a difficult problem, for all but the lightest diets cause considerable colic. His appetite, however, is excellent.

Laboratory Investigations.—24.6.51: W.B.C. 6,000/c.mm. Normal differential. Urine microscopy: no casts seen.

Weil-Felix Reaction.—

<i>Day of disease:</i>		18.....	30
Proteus OX2	...	1 in 80	1 in 80
Proteus OX19	...	1 in 40	1 in 80
Proteus OXK	...	1 in 2,560	1 in 2,560

The Weil-Felix test was carried out according to Felix (1944).

Both cases, members of the same regiment, were notified on A.F. A35 on June 24, 1951. Lieut.-Colonel R. Niven, M.C., R.A.M.C., D.A.D.A.H., British Commonwealth Forces in Korea notified by telephone, Colonel Long, Chief of Preventive Medicine, G.H.Q., F.E.C., on July 3, 1951 and Colonel Gordon, Chief of Preventive Medicine, E.U.S.A.K. on July 4, 1951. He visited the latter on July 9, 1951. The Eighth Army are now investigating the question of scrub typhus in Korea and intensive investigations are now taking place. No doubt a report will be forthcoming in due course.

ACKNOWLEDGMENTS

We wish to thank Colonel C. W. Nye, D.D.M.S., British Commonwealth Forces in Korea, and Colonel J. E. Snow, O.B.E., Commanding 29 General Hospital, for their permission to forward these notes for publication and No. 19136490 Pte. J. Downey, R.A.M.C., for typing these notes for us.

REFERENCES

- FELIX, A. (1944) *Trans. Roy. Soc. Trop. Med. Hyg.*, 37, 321.
 A.M.D. Bulletin No. 49 (366).
 Medical Diseases in Tropical and Sub-tropical areas, 8th edition, 1946, pp. 266–270.

HEALTH AND THE MAN IN THE RANKS

BY

Captain J. SLOAN

*Royal Army Medical Corps
Army School of Health*

“ . . . the uneducated are poorest in the things that cost least.”

In recent years a marked change has become apparent in the Service attitude towards health education. The acute man-power problem has inspired a mounting appreciation of the vital necessity for applying the principles of hygiene to the overall military machine. The possibilities of saving, and in fact increasing, Service man-hours by a substantial reduction of preventable sickness are now being extensively explored and exploited by commanders.

There is tangible and official confirmation of this in the extension of the syllabus of health education at Army Basic Training Units. Reports indicate that the scheme is not yet enjoying optimum exploitation but even at this stage it is interesting and important to look generally at the reaction of the man in the ranks to health instruction, to consider his reception of such a subject, and of course to consider the complexities of getting it over to him successfully.

Much has been written in lay and professional circles about the high idealistic intentions of present-day schemes for community health education. The long-term and beneficial influence of such campaigns has been discussed on an international basis, but little—surprisingly little—has been said about its acceptance by the citizen or the soldier, in spite of the fact that this is the keystone of the whole ambitious structure, for even the finest merchandise is “dead-stock” if it cannot be sold.

The writer has been actively engaged for some years in the general indoctrination of large numbers of British and Oriental personnel in general health topics. The work has embraced a wide sphere of activity and the records maintained, tempered by considered impressions, may give some idea of how the modern policy is getting over to the men.

In due fairness to the Army Health Organisation, however, it is necessary, first of all, to consider certain circumstantial and environmental obstacles which the health instructor must surmount before he can start to tackle his subject in earnest.

Obstacle No. 1 is the sad fact that the value of good health is all too often appreciated only by those to whom it is denied.

Obstacle No. 2 is, without doubt, "this modern age."

We are living in days of spectacular accomplishment and brilliant achievement. Through the medium of the popular Press the adolescent is regularly fed an over liberal and often distorted ration of the significance and consequences of these attainments. Loose lay reporting and speculation on subjects like atomic energy, jet propulsion, radar, yes, and even flying saucers, has stimulated a new trend of thought. This, together with the strange influence and fascination of the futuristic type strip comic, is weaving a new glamour around modern inventions—and that is true whether the inventions are fact or fantasy.

The British medical authorities, on the other hand, are rightly conservative in the release of information about new drugs and therapies. This is a laudable feature but it means that the progress and successes in curative and preventive medicine, while certainly more important personally to the general community, are, by the curb on Press sensationalization, less spectacular in their popular appeal.

Carried into the military sphere these different factors produce a circumstance whereby the instructor in modern arms, cannon, tanks, radar, etc., has a great and immediate psychological advantage over his counterpart in Army Health. By reason of the National Service Act the present-day Army is required to train extremely young men and the individual whose job it is to instruct the new recruit in handling the weapons of war is, in many cases, helping him towards the satisfaction of schoolday ambitions. Times may have changed; "Superman" and "Flash Gordon" may have replaced Buffalo Bill in youthful adoration; the toy water pistol may have given way to the toy ray gun; but the boy and his childhood firearms are still inseparable.

There may be those who feel that the "modern weapon" angle is being too strongly stressed but a survey of the reading material of the troops, particularly those overseas, would show that this circumstantial backcloth has not been exaggerated, yet it is against such a background that the Army health instructor has to crusade for a better way of living; a way of living that will serve the Army and the individual with equal benefit.

The task is not easy and it is at times disheartening; it can and must be done, but it must be done well.

Successful health education, lacking the advantage of popular visual aids, depends almost entirely on the sincerity of purpose, personality and instructional ability of the lecturer. And that is true whether he be officer or other rank, doctor or layman. It has been said that there are only two classifications of instructors—"good" and "very good"—and that those who might be termed "bad" are not instructors at all. Particularly is this axiom applicable in the sphere of Army Health and when the man-power situation permits wider scope in the selection of potential instructors a big step forward will be possible.

In the hands of an inexperienced or indifferent lecturer "Health" can be

a dull listless subject with the interest of possible converts destroyed rather than roused.

A recent incident in the Far East will explain adequately this sort of situation.

In an infantry unit stationed in an area where the preventable sick rate was high, a young 2/Lt. turned up to address a group of men on "Health." He started off by telling the gathering that he had been detailed for the job and confessed that he knew very little about it. He read, at random, extracts from a printed pamphlet, refused to allow questions or discussion, and dismissed the men. Such a performance is to be deprecated. How can a soldier or in fact anyone be convinced of the vital importance of a subject accorded such shabby treatment?

In contrast to this sort of thing keen sincere instructors can put over the essential material in a way that arrests the attention of the novice, rouses his interest, and finally stimulates curiosity and a desire for more information. That this is true is best shown by the remarks of a major who in the face of jocular derision decided to get himself on a course devised to meet the needs of junior regimental officers. At the end of the course he said (as accurately as can be recalled) "My coming here was regarded as something of a joke in certain quarters—and I must admit that there was more than just a shade of scepticism in my mind as to the good I might derive from the course. But I am won over—and I say without reservation that every officer and man in my unit should attend such a course—*provided it is always put over like this.*"

It is worth while here to record two quotations from talks given recently to young officers. The lectures took place many miles apart but by very different means both speakers vividly underlined the essential nature of the regimental officer's responsibility in all matters concerning the health of the soldier.

The first tackled it like this. ". . . and I agree," he said, "that modern hospital beds are comfortable . . . but when they are filled with cases of preventable sickness they are mute critics of someone's incompetence . . . and remember the cases may very well be your men . . ."

The second lecturer exploited a definite military touch. He said, "Health—good health—is the right of the line. Every aspect of modern warfare is dressed on fitness . . . if the marker is missing it is going to be a poor line . . . and only you—the regimental officer—can produce this vital marker . . ."

Incidentally there is one aspect of present-day instruction—if one excludes drains and latrines—which does not go down well. Officers and men alike have shown repeatedly their disapproval of the heavy recital of morbid evidence concerned with past failures in hygiene and sanitation. The student attitude seems to be that while the facts are certainly true they tend to create a negative atmosphere rather than the positive one so important to

modern thought. An infantry serjeant said after a recent lecture "... I haven't been so depressed for years . . . the classroom was littered with corpses, crosses and graves . . .!!"

The reaction to good instruction is probably more marked in other rank audiences than with officers. When the soldier starts to appreciate the important role there is for him to play he begins to realize—sometimes reluctantly at first—that even from his own personal point of view living is not something to be taken for granted. He soon sees, too, that a general understanding of, and sensible adherence to, a few simple rules can make all the difference between his physical discomfort and his well being. EXPERIENCE SHOWS, HOWEVER, THAT HE MUST BE CONVINCED THAT THE EFFORT IS AS IMPORTANT TO HIM, AS AN INDIVIDUAL, AS IT IS TO THE ARMY. The complementary factors are obvious. The man's efforts to protect or improve his health will increase his potentialities and that in turn can only be beneficial to the military machine which he serves—provided, of course, his efforts are based on sound practice.

It is prudent, too, at this stage to consider the diversities of a typical military audience which, under present-day circumstances, is pretty certainly built up of men from many different walks of life and with interests and opinions that are no less dissimilar. Accordingly one can find the same subject matter viewed with passive hostility, indifference, casual interest or enthusiasm in relation to the attitude of the individual towards the particular lecture or talk. Everything therefore depends on the instructor's introduction; if he gets off to an impressive start he has a good chance of achieving his objective.

Two closely related incidents will emphasize the decisive nature of this good beginning.

In the first an other rank lecturer was giving the opening talk of a series to officers and men of a unit newly arrived in an overseas station. His talk was well planned, topical, constructive and personal, and at its conclusion a high-ranking officer who, after being attracted by a striking introduction had stayed throughout the talk, stood up and complimented the lecturer. He applauded the originality of the methods employed and he took the chance to press home the importance of the subject on the audience.

In the second instance a serjeant was assigned to a unit to give a series of orientation talks while the personnel were in sea transit to a new active service station. He had an important job to do but his material was poorly prepared and indifferently delivered, so much so, that the senior officer present stopped the opening lecture half-way through and cancelled the remainder of the series.

In spite of the occasional failure this much is definite:

"Health" can be put over to the rank and file in a way that will kindle interest and encourage response. Men can still be moved by oratory and influenced by salesmanship, but instructors, like orators and salesmen, cannot be made in a few days or a few months. Health instruction requires

the treatment that only experience—practical experience—can give, and even then it has to be mellowed in the wood of Service employment as well as being prepared idealistically in the more remote academic spheres of preventive medicine.

The fundamentals of health education may be regarded as constant but the methods employed in their presentation to a lay audience should be varied to suit the requirements of students from different arms of the Service. This variable factor must be the adaptation and adjustment of health instruction in sympathy with the military function of the men concerned. Living and working conditions influence and create health hazards and when the soldier audience knows that a lecturer, as well as being proficient in his subject, understands its peculiar problems, then it is more than ever willing to consider the advice he has to offer. An understanding like this cannot be established by blind allegiance to textbooks. It is cultivated only when an air of mutual respect develops between the lecturer and his audience. "Knowing the Army" is an imperative qualification of every instructor in Army Health. The soldier enjoys good health education, particularly when it is practical and directly associated with his own prevailing circumstances . . . and above all he appreciates topical examples and illustrations that he can understand easily.

Much good health education work has already been done, and with the constant improvement of training facilities scope for its furtherance appears to be immense.

Already mobile health teams, working under very different conditions at home and in the Far East, have carried the "Health Story" right into unit lines.

The home-based team has worked with the Regular Army in Barracks and at camp and with the Territorial Army in its local drill halls. Overseas the teams have been employed in the general indoctrination of garrison and active service troops in Malaya and Hong Kong. The work has met with much success but it should be remembered that the members of these teams were usually hand-picked from among experienced R.A.M.C. instructors.

Recently it was said that military sanitation had made little progress, practical progress, in the last twenty-five years; that the sanitary problems and solutions of today are virtually identical with those at the end of the 1914–1918 war. This is probably a part truth but while some may conveniently read it as a criticism of the ingenuity of the sanitary engineers, it is surely the soundest possible justification of the principles around which health and hygiene organizations are built. The inherent disposal instincts of the humble cat and the age-old laws of Moses are as genuine today as ever they were, but it is also irrefutable that the habits of society, the *fons et origo*, have not become less fickle down the years.

The solution to sanitary problems lies, not so much in the provision of new or more complicated appliances, but in the education of the community—large or small—in how best to use whatever is available.

The modern health discipline policy in the Army appears to be based on this point of view. The man in the ranks has shown that, if the education is administered to him in pleasant digestible doses, he is ready to accept and benefit from it. The chance for a successful launching of a mass health education attack is more opportune than ever before, but it could be lost for lack of enthusiastic instructors, or imperilled, probably dangerously if it is entrusted to inexperienced lecturers, effervescent with theory but devoid of that vital understanding of things military. If the chance is grasped and if the soldier of today and tomorrow can be assured that, in spite of the mechanization and developments of modern war, HE—the man in the ranks—is still the predominant element in the art of war, then, and only then, will he see health and hygiene in all their importance as battle weapons.

It should never be forgotten that the efficiency of great commercial houses is often judged, not on the theoretical knowledge or technical abilities of the manufacturer but on the service rendered by his local representative—whether he be in the factory, the near-by town, or in some remote location. The great trading organizations still appoint local representatives with fine discretion and take justified pride, and profit, from the services they are able to offer even at the most distant capillaries of their distribution system. Experience has proved to them that that is where the real success of their business is established and sustained.

Equal jealousy of purpose and reputation can serve Army Health well. Every health instructor, irrespective of his rank or the arm of the Service to which he belongs, should be chosen, not as a stop-gap to fill a vacancy in the establishment or to satisfy an obligation in a training programme, but because he has the knowledge, experience, ability and DESIRE to “sell” health with benefit to the “customer” and satisfaction to the organization which he serves.

This paper is intended only as a collection of personal impressions and opinions formed while the writer has been actively engaged in health education.

An attempt has been made to show that the man in the ranks will react in the right way to the right kind of health instruction but that many modern influences make him a tough challenge to all but the very best instructors.

It must also be noted that regimental officers and N.C.O.s do not appreciate fully their vital role within the structure of the health education policy. Many of them obviously do not realize that they are in fact the “local representatives” of the Army Health Organisation.

Thanks are due to Colonel H. E. Knott, *O.B.E.*, Commandant, Army School of Health, for permission to forward this paper for publication.

A CRITICISM OF MILITARY PSYCHIATRY IN THE SECOND WORLD WAR

BY

Captain H. J. C. J. L'ETANG, B.A., B.M., B.Ch.

Royal Army Medical Corps (T.A.)

(Continued from page 197)

PART II

EXPERIENCES IN GENERAL PRACTICE (1946-1949)

ON entering general practice in 1946, the writer was at once impressed by the number of ex-Servicemen who had been discharged for psychiatric disorders, and by the readiness of doctors and patients to attribute symptoms to a psychological cause. Towards the end of 1946, H. M. Moran [5], an Australian surgeon, published a book, part of which was devoted to a criticism of psychiatric policy in the Army. After the book had been reviewed, the correspondence columns of the *Daily Telegraph* gave opportunities for a discussion of this policy.

This stimulated the writer to follow up the ex-Servicemen in his practice who had been discharged from the Army through medical channels and thus discover the proportion with psychiatric disorders. Such a survey served a double purpose. Firstly, it would reveal whether the cases of psychiatric disorder were in fact as great in number as had been supposed, and secondly it would give an opportunity to study once more the type of case which had been posted from Army units on the recommendation of psychiatrists. This would be a fair substitute for a far more valuable follow-up which the writer had planned. It had been hoped to secure copies of "Battalion Orders" for 1943 and 1944, and from the list of men posted away from the unit select those removed on the advice of a psychiatrist. Their subsequent Army careers could then have been examined. The writer was informed that in the unlikely event of permission being granted, such records were not accessible.

The practice was in the "East End" of London and the district was typical of the industrial areas from which the bulk of the armed forces are drawn. There were 3,000 patients in the practice in 1946 increasing to 5,000 in 1949 as patients returned from the Services and the evacuation areas. Of this number, 71 had been invalided between 1940 and 1949. A small proportion

were invalided between 1945 and 1949 after the Second World War had officially ended, but as fighting continued in Palestine and Malaya and the Army was still partially mobilized, the position was the same as during the war. In nearly every case, a short medical record of each man was furnished by the Ministry of Pensions and a personal visit was paid.

The disadvantages of such a survey in the intensely personal atmosphere of a general practice became apparent immediately. It was obviously impossible to tell the patients the true nature of the visit, which was conducted under the guise of a routine examination of ex-Servicemen. As a consequence, the interrogation could not be as thorough as that carried out in a more impersonal hospital follow-up, and, as it was, some of the patients from both organic and psychiatric groups became suspicious and even resentful. It would have been instructive to examine their civilian records in some detail, and it would have been interesting to have had all the cases re-examined by an independent psychiatrist.

Among the 71 cases, causes of invaliding were as follows:

Psychiatric causes	...	...	...	30
Gunshot wounds	...	...	...	8
Orthopaedic; fracture cases	...	...	...	9
Peptic ulcer	...	...	...	6
Chest disease	...	...	...	6
Ear disease	...	...	...	4
General medical disease	...	...	...	4
Eye disease	...	...	...	2
Cardiovascular disease	...	...	...	2

The psychiatric cases were then examined in more detail:

Psychoneurosis, hysteria, temperamental instability, etc.	...	...	...	20
Neurosis following experiences as prisoners of war	...	...	...	3
Psychopathic personality	...	...	...	3
Schizophrenia	...	...	...	2
Mental deficiency	...	...	...	1
Attempted suicide	...	...	...	1

Psychiatric disorder was the largest single cause of invaliding in this series, constituting more than half of the total medical cases, with psychoneurosis as the most common abnormality.

An interesting comparison may be made with certain figures which were laid before the Expert Committee [2]. Examination of 118,000 psychiatric cases from all three British Services invalided between September 1939 and June 1944, revealed that they constituted between one-third and one-half of all medical invalids. Further analysis of the group revealed that the various psychiatric disorders occurred in the following proportion:

Psychoneurosis, effort syndrome	...	64.3 per cent
Psychoses	...	21.2 per cent
Psychopathic personality	...	8.1 per cent
Mental defect	...	6.4 per cent

Further study of these case histories reveals that only a minority of the psychoneurotic cases had experienced front-line service before being downgraded or invalided—only 3 cases out of 20. Brigadier James, the Consultant Psychiatrist, investigated a larger series of cases in North Africa between 1940 and 1943 [6]. At different times he examined three groups of psychoneurotic patients totalling 4,000 in all, and found that battle stress was the predisposing cause in only 35 per cent of cases.

In order to give some idea of the type of cases under discussion, relevant extracts from service documents will be quoted. This is unfortunately an inadequate method of describing psychiatric cases in which so much depends on personal contact and impressions, but it is the only available means. When discussing organic disease, the listing of physical signs, and radiological and laboratory findings, form a clear impression on the reader's mind. In the cases to be discussed, there is only the personal opinion of a psychiatrist dealing with a subject which cannot be measured in any tangible way. Similarly, any comments on these opinions are personal, and are open to the criticism that examination of a patient in 1945 or 1950 may not reveal his mental condition in 1940. The larger psychoneurotic group will be considered first.

Case 1.—H. J. B. Was in the Merchant Navy, and was torpedoed twice, on the second occasion being three weeks in an open boat. He suffered very severe privations during this period, and received treatment in 1946 and 1947 for anxiety state and post concussive symptoms.

Case 2.—G. H. D. Stated that during the evacuation at Dunkirk he sustained a slight gunshot wound which was followed by shaking of the limbs, headache and giddiness.

Further extracts from his history were furnished by the Ministry of Pensions. "He was a peacetime regular soldier, who suffered a trivial head injury in 1931, followed by headaches. Recurrent anxiety attacks occurred after 1935. His nerves have been worse since calling up, and he has had more sick leave than duty. He cracked up completely on coming under fire in January 1940, and had to be sent back to base."

A specialist stated that how as mentally self-centred, hypochondriacal, and of low intelligence (50 per cent of normal), that he was a feeble, unstable personality who did not succeed in adapting to ordinary army life, but had long sick periods, and broke up completely at the first slight strain. The specialist considered he was incapable of being made into a useful soldier and the Board invalided him as a case of "Anxiety Neurosis."

Case 3.—S. S. Was exposed to blast from a shell at Salerno in 1944 and suffered from concussion and rupture of the right ear-drum. Later in the year while serving in a reconnaissance unit, the rest of his party was killed and he received an injury to the sacrum, which was followed by persistent low back pain, headaches, and black-outs.

The Corps Psychiatrist advised transfer to a psychiatric centre or discharge, and he was discharged from the Army in 1945 with a diagnosis of "Hysteria-Sensory."

There is little doubt that the first patient (H. J. B.) was unfit for any other form of active service, but this cannot be said for the other 2 patients. The second (G. H. D.) had presumably given useful service in peacetime otherwise he would not have been retained in his unit, and he had served at the Base in France from February to June 1940. The fact that he was described as mentally self-centred, hypochondriacal and of low intelligence should not have prevented him being employed on domestic duties at the Base—tasks requiring far less

aptitude than is needed in his normal trade of a chair maker. The danger of discharging these cases as anxiety neuroses is illustrated by subsequent events. In 1949 a letter from an official of the British Legion was received, asking for information as the man was claiming a pension on the grounds that his disability, anxiety neuroses, was either attributable to, or aggravated by, war service.

The third patient (S. S.) had suffered considerable strain, but again service at the Base should not have been beyond his powers.

Case 4.—A. E. K. The report states that on admission to hospital he was tense, tremulous and apathetic. His predominating complaint was a feeling of depersonalization in which he complained that he was unable to feel any emotion whatsoever, and felt as though he were living in a dream world. There was no evidence of delusions or hallucinations. He improved to some extent, and gained some insight into his illness. He was described as being a basically unstable, inadequate personality with short-term values, in whom a breakdown was precipitated by the death of his mother, and the loss of a girl to whom he was strongly attached. He showed mild somatic signs of anxiety (tremors, tachycardia, and rapid anxious speech), and complained of feeling of unreality and difficulty in venturing out alone.

He was considered unlikely to make further adjustment to military service, and he was discharged with a diagnosis of "anxiety state."

This patient had served in the R.A.O.C., through the whole of the N.W. Europe campaign of 1944–1945, his task being the examination of captured enemy equipment. He was never exposed to any danger, and the first point of interest is that the symptoms developed in Brussels after the war had ended. The second point of interest is that he is the only man in the series who was unable to carry on any civilian occupation after discharge. He did not resume his normal work until 1950.

Case 5.—S. A. B. Was passed fit for general service in the Territorial Army in 1936, and called up in 1939. In January 1940 he was in hospital with bronchitis and influenza. Chest X-ray normal. Sputum negative. W.R. and Kahn test negative. In April 1940 he was readmitted for investigation, and a diagnosis of "pseudo angina" was made. It was noted that he complained of pains in the chest, headache, numbness in the hands, and abdominal pain. Investigations revealed that the chest X-ray was normal, test meal normal, but the barium meal was suggestive of a gastric neoplasm. He was transferred to another hospital in May 1940, and to another in June 1940. Later in this month a diagnosis of anxiety state was made. A further chest X-ray proved normal and another barium meal revealed no evidence of neoplasm. In July 1940 he was seen by a psychiatrist who recommended discharge from the Army.

This case illustrates the danger of over-hospitalization and over-enthusiastic investigations. The patient was a Cook-Serjeant and could surely have carried on in this trade.

Case 6.—A. B. Joined the Army in 1943, and was employed in Normandy in 1944, driving vehicles and replacements up to the front line. After the fighting had ceased, he had two road accidents. He was never unconscious but complained of headaches and giddiness. He was invalided and described as "a poor inadequate personality, of low average intelligence. Neurotic symptoms throughout and a neuropathic family history." Diagnosis—hysteria (sensory).

Case 7.—C. W. B. Stated he was concussed in a motor accident in July 1947, and since then suffered from headaches, vertigo, black-outs and faintings. A neurologist reported that there was no evidence of organic abnormality. A psychiatrist found that the man was depressed, worried and anxious that his intelligence was below average, and that he was an inadequate unstable type.

A diagnosis of "Hysteria (sensory)" was made, and the psychiatrist considered he was unlikely to render further useful service, as he was "preoccupied with personal problems to the exclusion of other interests." He felt that treatment in hospital would be unlikely to assist the man.

These 2 cases raise the question of whether the presence of symptoms which do not respond to treatment should lead to the patient being discharged from the services. It is probable that these 2 patients could have been found employment, though not as drivers. Neither of them have complained of their symptoms since their release from the Forces, and it would appear that the situation is comparable with that which arises after industrial accidents—the one set of symptoms being relieved by release from the Services, and the other symptoms being relieved by a financial settlement.

Case 8.—H. F. T. Complained of pain and weakness in the left arm in October 1941. The psychiatrist found he had always suffered from depressed moods and had not been a good mixer. He married in August 1939 and showed an unduly profound attachment for his wife as a compensation for his feeling of lack of intimate emotional contact previously. In hospital he was described as being "intellectually superior." He remained depressed and disgruntled, with hysterical weakness and anæsthesia in the left arm. The weakness was modifiable by suggestion, but despite this he was recommended for discharge in January 1942. After discharge he stayed with one firm for five years, and is now working in the offices of a voluntary hospital.

Hysterical paralyses were rare in the Second World War, and with reference to the treatment and disposal of this case one may quote Sir Arthur Hurst '71. "Even now in 1944 it is not invariably recognized that a diagnosis of hysteria carries with it the obligation to cure the patient, and that this can almost invariably be done at once, and with great rapidity."

Case 9.—A. S. An extract from his records states that "on returning from Christmas leave he became unduly depressed, worried and anxious. He had considerable domestic worries."

An R.A.F. neuropsychiatrist stated at the time: "He is still showing marked emotional lability—it is recommended that he be invalided on the grounds that he is temperamentally unstable."

Case 10.—G. A. N. The extract from the R.A.F. records merely states that he was invalided for (1) temperamental instability, manifesting itself in headaches and insomnia, and (2) chronic suppurative otitis media.

These 2 cases have been considered together because the disability—temperamental instability—was the same in each case. In Case 9, it is perhaps unfair to dwell unduly on what is probably one paragraph from a long report. Many people must have experienced similar symptoms on returning from leave, and it is significant in this case that the neuropsychiatrist had only been qualified for three years. G. A. N. stated that he had joined the R.A.F. in 1940, and had volunteered for air crew duties. He is an intelligent and able man who.

when examined, was in charge of a settlement in the East End of London. Some suitable duties could surely have been found for him in the R.A.F.

Case 11.—T. H. The extract from the notes indicate that this airman had developed typical anxiety symptoms (headaches, giddiness, sleeplessness, etc.) as a reaction to a difficult domestic situation. A diagnosis of anxiety state was made and invaliding recommended.

This patient was on non-flying duties in Ceylon and such symptoms as were present could probably have been ameliorated by compassionate leave, or even a special release.

Case 12.—E. G. C. Had rheumatic fever when a child, but denied this when he had his medical examination in 1941 as he wanted to join the Army. He served as an anti-aircraft gunner in the Orkneys and was discharged in 1944 with "psychoneurosis" and "rheumatism." The psychiatrist reported that he was agitated and nervous, and that he belonged to a dull and backward group of individuals, and that on the basis of poor intelligence there rested a large hysterical, hypochondriacal superstructure.

After discharge from the Army this man stayed at one job for four years and did not report sick in this period. He himself stated that some of his symptoms were due to the lonely and depressing conditions in the Orkneys and in fact one man in a nearby unit committed suicide. Though both Cases 11 and 12 may have possessed certain signs and symptoms, it is doubtful if they constituted a true psychoneurosis.

Case 13.—G. C. F. Was in the Royal Artillery and served in N. Africa and Persia but did not experience active service. Just before his unit embarked for Italy in 1943 he developed violent shaking in the limbs and headaches and was posted to another unit.

On 14.8.45 he was described as a chronic neurotic who broke down under the strain of overseas training and domestic worry. The psychiatrist considered he had been slightly improved by treatment in hospital but was unfit for further service as he had an anxiety state.

It seems surprising that this man was invalided, for he must have served at the base from the onset of symptoms in 1943 until the summer of 1945 when he would be due for release with his "age and service" group.

Case 14.—R. E. Was a keen soldier, but following an accident in which he killed his best friend he developed the symptoms of an anxiety state. The symptoms did not respond to treatment.

Case 15.—S. J. The notes merely state that he was a timid immature youth of low intelligence, who was unduly depressed. He had been absent without leave on several occasions and had deserted once. He was invalided with a diagnosis of "Anxiety State, Chronic."

This case would appear to be one for disciplinary action and the best disposal would have been a dishonourable discharge, rather than an honourable release through medical channels.

Case 16.—L. D. A. When examined on 26.12.41 he was described as "nervous, anxious, with apparently subnormal mentality. There is difficulty in starting a sentence but he continues easily once the sentence is started. He is unable to speak for several seconds if addressed sharply." The specialist reported that he complained of bad nerves, difficulty in getting words out, and fear of the dark. The patient did quite well at school and had a fair employment history.

It was concluded that he was of average intelligence and had a timid, inadequate, over-protected personality. He had a fairly severe degree of speech block which he attempted to overcome by rubbing his nose and other mannerisms. In July 1941 a psychiatrist advised that he be kept under observation. A diagnosis of psychoneurosis (hysterical) group was made, and it was recommended that he be discharged as he was reported to be no use as a soldier and frequently sick.

This patient was in the Pioneer Corps and his speech disorder need not have prevented him doing the simple manual work performed by this Corps.

Case 17.—H. A. M. Was discharged with "effort syndrome" and the psychiatrist's report stated: "This man is definitely immature for his years and a poor physical specimen. Quite intelligent. Poor personality. Constitutional neuropath. Emotionally unstable. Poor physical and mental make up. Unlikely to make an efficient soldier."

This case is of interest for several reasons. Firstly, effort syndrome was comparatively rare in the Second World War. Secondly, the report illustrates the vague terminology used by psychiatrists. Thirdly, this man though rather immature and undeveloped would have made a useful nursing orderly in the R.A.M.C. where he was posted in the first place, and where he would not have had to be "an efficient soldier."

Case 18.—G. A. R. Joined the Army in 1941 and served as a batman in a light Anti-Aircraft Regiment in England. In 1944, he began to suffer from insomnia, because he was worrying about his wife and two children who were exposed to air raids. In 1945, he was sent to a psychiatrist and discharged from the Army as a psychopathic personality with emotional abnormality. The psychiatrist described him as "A poor dull, miserable looking man with a long list of symptoms. He is emotionally unstable and of low intelligence."

This man returned to his trade as a veneer repairer and has remained there since. He has attended the surgery on a few occasions for minor complaints. He had performed useful domestic duties as a batman and there seems to have been little reason for removing him from these duties.

Case 19.—D. B. Volunteered for the R.A.F. in November 1943 and was discharged in January 1944. The records have unfortunately been lost, but the man states he suffered from "nerves."

Case 20.—H. W. H. Volunteered for the Army and concealed the fact that he had received treatment at Neurological Departments in 1935 and 1936. (Examination had revealed choroido-retinal atrophy on the right side, deafness in the left ear and aural vertigo.)

He was invalided from the Army with a diagnosis of (1) retinitis pigmentosa, (2) mitral regurgitation, and (3) low mental state (neurosis).

Re-examination revealed that his heart and mental state were both within normal limits.

It is difficult to comment upon the other 10 cases in the series for a diagnosis of schizophrenia or psychopathic personality stigmatizes a man far more than does a diagnosis of psychoneurosis.

Not all psychiatrists are agreed that such cases should be discharged. Indeed Mayer-Gross [44] has stated:

"Schizophrenics remitted after a first attack have been excellent subordinates thanks to their loss of spontaneity and even have shown unselfish recklessness in

action thanks to the shallowness of their emotions. Similarly, many high-grade mental defectives make good soldiers for some time on account of their docile subordination and dull gregariousness."

After their experiences in the Royal Navy, Curran and Mallinson [45] observed:

"Some patients, particularly psychopaths and hysterics, would benefit from a labour corps or rehabilitation camp where all kinds of manual labour could be done under modified naval discipline."

Two case histories are of interest:

C. G. R. His records state that soon after he joined the Army his wife deserted him. He repeatedly deserted or went absent without leave. A psychiatrist diagnosed chronic anxiety in an inadequate personality, and he was discharged as a case of "psychopathic delinquency."

In an interview in 1947, this man stated that he wished to join the Royal Engineers, but was sent to the Royal Army Medical Corps. He did not make satisfactory progress as the lectures at the Corps Depot sent him to sleep—a state which overtook many medical officers who attended the same lectures.

A. L. Enlisted on 3.8.44, but was unable to master rifle drill and worried about this. On 10.8.44 he was sent to York Military Hospital and was transferred to another hospital on 18.8.44. He was discharged from the Army on 24.8.44 as a case of "neurosis." Later in the same year he was admitted to a Mental Hospital and considered to be an early case of schizophrenia. He carried on in civilian life until the end of 1946, when he was readmitted to this hospital, and given insulin shock therapy.

At this time, he was seen by a Consulting Neurologist who considered that the patient had a grade two mental capacity, and was being worried by work that was far beyond his ability. One wonders whether some simple employment could have been found for him in the Army.

The cases of neurosis following experience in captivity have not been considered since these men had rendered useful military service. The man who had attempted suicide was not visited for obvious reasons.

DISCUSSION

In the discussion of his war experience, the writer observed that the majority of cases were referred to psychiatrists before reaching first-line units. The series quoted above confirms this view. There can be no doubt that some of them showed greater psychological abnormality than the cases seen in the battalion. Just as the battalion cases could have proceeded on active service, so the majority of the second series could have served at the base, and invaliding would seem to have been unnecessary. The writer has pointed out that in a front-line battalion, some duties are much more hazardous than others. The gulf between the man in the battalion and the man at the base is many times wider. In all seriousness the writer considers that if a man cannot perform one of the many, simple domestic duties required of a soldier at the base, it would hardly seem fair to allow him to face the difficulties of civilian life.

One argument advanced for invaliding these men is that if they cannot face the strain of Service life, they will be more useful to the country and themselves in civilian life. Of the Service cases quoted in the second series some at least lived in pleasant surroundings in the country or at the sea, all were fed clothed and housed, and all had allowances paid to their families. After discharge they were sent back to an industrial area to face the perpetual danger of bombing, and to live on less adequate rations in squalid houses, or dirty air-raid shelters. Despite full employment, life was a struggle. One wonders if Army life really was a greater strain.

In 3 of the cases the phrase "unlikely to make an efficient soldier" was used. It is true that these men were unlikely to make efficient fighting soldiers, but as only a small proportion of soldiers do fight, and as the higher commands of all Services are lavish in the establishment of Base and other non-fighting units, alternative employment could surely have been found.

The writer considers that many of these recommendations for invaliding and down-grading resulted from rigidity of thought. Some individuals with varicose veins and flat feet are unable to march, and during the First World War anyone with these conditions was downgraded, and was not allowed to serve in a front-line unit. Consequently many enthusiastic men (and many lazy ones) were prevented from serving to their full capacity. It seems that a similar attitude of mind prevailed in the Second World War with regard to the disposal of psychiatric cases. Some men with psychoneurosis are unfit even to serve at the Base, but to discharge every man who admits to, or is found to have a psychoneurotic symptom is far too sweeping. When discussing another aspect of military medicine, Marriott remarked that "An Army exists to fight—not to go to hospital" [42]. Psychiatric policy should have been directed to fitting men for the fight, rather than to finding and creating posts for them at the base.

(To be continued)

EXPERIMENTS WITH THE FIRST FIELD DRESSING

BY

Major P. W. KIPPAX, B.Sc., M.B., Ch.B.

Royal Army Medical Corps

AND

R. D. GOODE

Associate Institute of Medical Laboratory Technology,

Senior Assistant (Scientific)

PURPOSE OF EXPERIMENTS

THE First Field Dressing consists of an absorbent pad impregnated with neutral acriflavine. The specification lays down that the amount of antiseptic shall not fall below 0·1 per cent dry weight of the dressing. The dressing weighs 18·9 grammes (average of ten dressings). The purpose of these experiments was to serve as a pilot study in a search for a better impregnating agent.

The Army Pathology Advisory Committee recommended that such a substance should show activity against the following organisms: *Streptococcus pyogenes*; *Staphylococcus aureus*; *Bact. coli*; *Proteus*; *Pseudomonas pyocyanea*.

The Committee also felt that an additional advantage would be an inhibitory action on the Clostridia.

APPROACH

Ideal requirements for a substance were now laid down. Such a substance should be:

- (1) Effective against the bacterial spectrum defined by the Committee.
- (2) Able to penetrate damaged tissue.
- (3) Active in the presence of serum.
- (4) Not harmful to the human body.
- (5) Non-sensitizing.
- (6) Readily incorporated in the dressing.
- (7) Stable.
- (8) Cheap and readily available.

Since it might be necessary to test a wide range of preparations, and possibly of mixtures, a screening procedure was devised (Method I), employing activity in the presence of serum as the essential property. Substances showing little or no activity in the presence of serum were not tested further. One substance which gave good results in the screening test was tested further by a specially devised method (Method II).

Substances for testing were selected because they were readily available. Some of them were rejected on grounds other than activity in the presence of serum—for example, instability.

TECHNIQUE

Method I (Screening Procedure)

Each substance was prepared in serial dilutions in water. The actual strengths used depended on the nature of the substance, whether it was supplied as the pure, dry, crystalline product or as a solution of specified strength. The range of dilutions used in Method I was in most cases from one in ten to one in one hundred thousand, in serial tenfold dilutions.

To 0.5 ml. amounts of the serial dilutions were added measured inocula of the test organisms. Not all organisms were used in the initial tests. If a substance showed activity against those organisms tested first, the remaining organisms were then used.

Standardization of the bacterial suspensions was carried out as follows: Stock agar slopes stored at 4° C. were used to inoculate bijou bottles of digest broth. These were incubated overnight at 37° C. and from them a 4 mm. platinum loopful was inoculated into 100 ml. digest broth. This was then incubated at 37° C. for eighteen hours. By means of concurrent checking of viable counts by the Miles and Misra method (continued throughout the experiments) it was found that this technique gave suspensions containing $300 \times 10^6 - 400 \times 10^6$ viable organisms per ml. Of this suspension, 0.02 ml. volumes were delivered into the dilutions of antiseptic, using "50-dropper" pipettes. This gave inocula of about $6 \times 10^6 - 8 \times 10^6$ organisms in each dilution of antiseptic.

All dilutions were then incubated at 37° C. for eighteen hours. The end-point of activity of the antiseptic was taken as the last tubes in the series showing no growth after incubation. To check for growth standard 4 mm. loopfuls were subcultured from the tubes into 25 ml. nutrient broth at the end of eighteen hours' incubation, in order to dilute residual antiseptic beyond its effective level. These subcultures were incubated overnight and then further subcultured on to blood agar. Where there was obvious turbidity in part of the series, subcultures from turbid dilutions were made only from that tube containing the strongest concentration of antiseptic. This afforded a check on the identity of the organisms.

Method II

One substance, sodium-ethyl-mercuri-thio-salicylate, gave better results with Method I than any other tested. Therefore it was decided to impregnate a First Field Dressing with this substance and to test its barrier effect by inoculating one of the test organisms on one side of an impregnated dressing soaked in serum and attempting to recover it subsequently from the other. The time taken for the organism to penetrate the entire thickness of the dressing would be estimated and compared with the time taken to penetrate an untreated dressing.

Ps. pyocyanea was chosen as the organism for three main reasons:

- (1) Because it is one of the more resistant of the vegetative organisms to antiseptics and antibiotics.
- (2) Because it is motile and grows freely and rapidly.
- (3) Because it is easily recognized.

Sterile dressings were impregnated with 100 mg. sodium-ethyl-mercuri-thio-salicylate per dressing by the following method.

100 mg. of the antiseptic were dissolved in 60 ml. of a 3 to 1 acetone-alcohol mixture, in which the substance is readily soluble, and which is sufficiently volatile to permit subsequent drying of the dressing without difficulty. 60 ml. solvent were just enough to saturate the average dressing without overflowing when 30 ml. were poured on to each side in a sterile Petri dish. Treated dressings were dried in sterile Petri dishes for forty-eight hours in the 37° C. incubator. Shorter drying times failed to remove all the solvent and led to coagulation of the serum which was subsequently added. After drying, each dressing was transferred aseptically to a fresh, sterile Petri dish and 100 ml. sterile horse serum were added. This amount was enough to saturate the dressing and leave a shallow layer in the dish. One drop of an overnight broth culture of *Ps. pyocyanea* was then dropped from a "50-dropper" pipette on to the centre of the upper surface of the dressing, and the whole incubated at 37° C.

The serum was sampled at hourly intervals by inoculating one loopful from the dish into 25 ml. nutrient broth. It was assumed that the resulting degree of dilution would be sufficient to terminate the action of the antiseptic in the subculture.

A control series was run, using dressings dried from alcohol-acetone but without sodium-ethyl-mercuri-thio-salicylate.

RESULTS

Method I

Results for four of the substances tested by the screening method are shown as Tables I, II, III and IV.

Other substances tested included:

Phenoxy-ethyl-dimethyl-dodecyl-ammonium bromide.

Di-phenyl iodonium chloride.

The former, though showing moderate activity in nutrient broth, was not considered sufficiently active in the presence of serum to justify further testing at present.

The latter was unstable when exposed to light at room temperature.

Method II

Results for standard dressings containing euflavine only are given as Group A.

Results for standard dressings (containing euflavine) impregnated with 100 mg. sodium-ethyl-mercuri-thio-salicylate are given as Group B.

RESULTS BY METHOD I

TABLE I.—DIBROMOPROPAMIDINE ISETHIONATE

Test organism	Time	Dilutions			
		1 in 1,000	1 in 2,000	1 in 10,000	1 in 100,000
<i>B. proteus</i>	24 hours	+	+	+	+
	48 hours	+	+	+	+
<i>Staph. aureus</i>	24 hours	Not tested	Sterile	Sterile	+
	48 hours	Not tested	Sterile	Sterile	+
<i>B. coli communis</i>	24 hours	Not tested	Sterile		+
	48 hours	Not tested	Sterile	+	+
<i>Ps. pyocyanea</i>	24 hours	Sterile	+	+	+
	48 hours	Sterile	+	+	+
<i>Strep. pyogenes</i>	24 hours	Not tested	+	+	+
	48 hours	Not tested	+	+	+

TABLE II.—PHENOXETOL

Test organism	Time	Dilutions					
		1 in 10	1 in 100	1 in 1,000	1 in 10,000	1 in 100,000	1 in 1,000,000
<i>B. proteus</i>	24 hours	Sterile	Sterile	Sterile	Sterile	+	+
	48 hours	Sterile	Sterile	Sterile	+	+	+
<i>Staph. aureus</i>	24 hours	Sterile	Sterile	+	+	+	+
	48 hours	Sterile	Sterile	+	+	+	+
<i>B. coli communis</i>	24 hours	Sterile	Sterile	+	+	+	+
	48 hours	Sterile	Sterile	+	+	+	+
<i>Ps. pyocyanea</i>	24 hours	Sterile	Sterile	Sterile	+	+	+
	48 hours	Sterile	Sterile	+	+	+	+
<i>Strep. pyogenes</i>	24 hours	Sterile	Sterile	+	+	+	+
	48 hours	Sterile	Sterile	Sterile	+	+	+

TABLE III.—“MERTHIOIATE”

Test organism	Time	Dilutions		
		1 in 1,000	1 in 10,000	1 in 100,000
<i>B. proteus</i>	24 hours	Sterile	+	+
	48 hours	Sterile	+	+
<i>Staph. aureus</i>	24 hours	Sterile	+	+
	48 hours	Sterile	+	+
<i>B. coli communis</i>	24 hours	Sterile	+	+
	48 hours	Sterile	+	+
<i>Ps. pyocyanea</i>	24 hours	Sterile	+	+
	48 hours	Sterile	+	+
<i>Strep. pyogenes</i>	24 hours	Sterile	+	+
	48 hours	Sterile	+	+

*One colony only on subculture.

TABLE IV.—POTASSIUM PERMANGANATE

<i>Test organism</i>	<i>Time</i>	<i>1 in 1,000</i>	<i>Dilutions 1 in 10,000</i>	<i>1 in 100,000</i>
<i>B. proteus</i>	24 hours	+	+	+
	48 hours	+	+	+
<i>Staph. aureus</i>	24 hours	+	+	+
	48 hours	+	+	+
<i>B. coli communis</i>	24 hours	+	+	+
	48 hours	+	+	+
<i>Ps. pyocyanea</i>	24 hours	+	+	+
	48 hours	+	+	+
<i>Strep. pyogenes</i>	24 hours	+	+	+
	48 hours	+	+	+

RESULTS BY METHOD II

GROUP A.—STANDARD DRESSINGS CONTAINING EUFLAVINE ONLY

<i>Serial number</i>	<i>Time taken to become culture positive (hours)</i>
1	5.5
2	6.0
3	6.0
4	6.0
5	6.0
6	8.0
7	9.0
8	17.0
9	17.5
10	20.0
11	20.0
12	36.0

NOTE.—Cultures were put up from the dressings under test at measured intervals of either 30 minutes or 60 minutes.

GROUP B.—STANDARD DRESSINGS (CONTAINING EUFLAVINE) TREATED WITH SODIUM-ETHYL-MERCURI-THIO-SALICYLATE

<i>Serial number</i>	<i>Total time-interval to the taking of the last culture (all were negative) (hours)</i>
1	43.0
2	43.0
3	43.0
4	43.0
5	43.5
6	43.5
7	72.0
8	77.0
9	77.0
10	168.0

NOTE.—Cultures were put up from the serum at measured intervals of either 30 minutes or 60 minutes.

DISCUSSION

The dressings in Group A (euflavine only) became culture-positive in a mean time of thirteen hours (Standard deviation 8.8 hours).

The dressings in Group B (containing euflavine and impregnated with 100 mg. sodium-ethyl-mercuri-thio-salicylate per dressing) were still culture negative after a mean time of 65.3 hours (Standard deviation 37.2 hours).

It is possible that the treated dressings could have been found culture-positive very soon after the final cultures were taken from them; for comparative purposes we shall assume that this actually occurred, although this weights the trial against one antiseptic under test.

The standard error of the difference between the mean of each group is 12.03 hours; whereas the observed difference is 52.3 hours, which is more than four times the standard error.

We can conclude, therefore, that the results we have obtained are very unlikely to have arisen by chance.

It is appreciated that some factor other than the sodium-ethyl-mercuri-thio-salicylate might have produced the results obtained; several different technicians were involved, and we cannot say that all the dressings were the same with regard to euflavine content and physical state.

However, this trial suggests that further investigations regarding the anti-septic efficiency of sodium-ethyl-mercuri-thio-salicylate would be well worthwhile.

Further limited experiments already undertaken suggest that the serum from Petri dishes used in Method II has considerable residual bactericidal activity when it has been in contact with dressings impregnated with sodium-ethyl-mercuri-thio-salicylate, and that the activity of this substance is retained in the presence of whole blood.

Activity against sporing organisms has not been tested.

SUMMARY

- (1) Details are given of preliminary experiments to find a better substance for impregnating the First Field Dressing than neutral acriflavine (euflavine).
- (2) These experiments suggest that sodium-ethyl-mercuri-thio-salicylate is worth trying further.

ACKNOWLEDGMENTS

This paper could not have been written without the advice and criticism of Major M. M. Lewis, R.A.M.C., who is responsible for the application of statistical methods to the presentation and discussion of the results of Method II.

We are grateful to the Commandant, The Royal Army Medical College, and to the Director of Pathology, The War Office, for permission to publish this article.

SOME OBSERVATIONS ON THE TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES

BY

Lieut.-Colonel R. M. JOHNSTONE, M.C., M.A., M.B., Ch.B., F.R.C.P.E.

Royal Army Medical Corps

Adviser in Medicine, Headquarters, East Africa Command

MEDICAL OFFICERS, who are posted to stations where they have to treat non-European personnel, need to learn what is normal in such patients before they can assess them correctly. Differences between European and non-European patients, which may be found on clinical examination, do not really lend themselves to description on paper by one, who is not gifted with the pen of a Heberden or a Paget, but are easily demonstrable at the bedside. On the other hand, the normal and abnormal values of the common clinical pathological investigations may be easily recorded and may thus form a small but useful addition to our knowledge of the biology of man.

The purpose of this paper is to record our findings in respect of one particular clinical pathological investigation made on adult male East African natives during the period April 1949–March 1951 at the Military Hospitals at Mackinnon Road and Nairobi.

This investigation was started because it was clear that in the native patients, undergoing treatment at the Military Hospital at Mackinnon Road, the total and differential leucocyte counts differed materially from those usually encountered in European patients in temperate climates.

To avoid overburdening the pathological laboratory no attempt was made to perform total and differential leucocyte counts except on patients, in whom it was considered that the information thus gained would be of value in reaching a diagnosis or in assessing prognosis. Furthermore, as the original purpose of the investigation was the purely practical one of learning how to interpret the results reported from the laboratory, the counts were carried out by the laboratory technicians. These technicians changed from time to time during the period of the investigations and so subjective sources of error may be randomized.

The material consisted of askaris from the military units and labourers from the Civil Labour Force between the ages of 20 and 45, who were admitted to hospital for investigation or treatment. A total of 480 leucocyte counts from 480 different patients has been collected. 34 of these patients have been classified

as apparently healthy. These patients were sent in for investigation by medical officers who had only recently arrived in East Africa and who were thus unaccustomed to dealing with natives. They were afebrile throughout their stay in hospital; had fifteen negative blood slides taken in the course of 72 hours; had no abnormality in their urine; had no parasites or parasitic ova in their stools; and had normal radiographs of their heart and lungs.

The main findings were all established at Mackinnon Road, but, at a later date, the investigation was continued at Nairobi for the purpose of deciding whether the findings were of general application or whether they were due to local conditions in Mackinnon Road. The findings in both hospitals were essentially similar so it is concluded that they are of general application.

The total and differential leucocyte counts in 33 healthy European males, aged 18 to 45, who were serving in East Africa, have also been recorded as they are considered to have an important bearing on the interpretation of the causation of our results.

Whitby and Britten [1] give the normal number of leucocytes in the circulating blood as 4,000 to 11,000 per c.mm.; and the normal distribution of the differential count as follows:

	Total per c.mm.	per cent
Neutrophil polymorphonuclears	1,500-7,500	33-75
Lymphocytes	1,000-4,500	15-60
Monocytes	0- 800	0- 9
Eosinophil polymorphonuclears	0- 400	0- 6
Basophil polymorphonuclears	0- 200	0- 2

In the 34 patients, in whom no evidence of disease could be found, the total leucocyte counts lay between 3,000 and 7,000 cells per c.mm.; the neutrophil polymorph counts lay between 1,000 and 4,000 cells per c.mm.; the lymphocyte counts between 1,000 and 4,500 cells per c.mm.; the monocyte counts between 0 and 500 cells per c.mm.; the eosinophil counts between 0 and 400 cells per c.mm.; and the basophil counts between 0 and 200 cells per c.mm.; though basophil cells were only seen in 5 of these patients.

TABLE I.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN HEALTHY ADULT MALE EAST AFRICAN NATIVES

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-nuclears	%	Eosino-phils	%	Basophils *
1	3,000	1,020	34	1,830	61	150	5	—	—	—
2	3,200	1,216	38	1,664	52	256	8	64	2	—
3	3,500	1,575	45	1,785	51	70	2	35	1	35
4	3,600	1,296	36	1,944	54	216	6	144	4	—
5	3,800	1,444	38	2,280	60	76	2	—	—	—
6	4,000	2,000	50	1,640	41	160	4	200	5	—
7	4,000	2,200	55	1,600	40	120	3	80	2	—
8	4,200	1,848	44	2,058	49	168	4	126	3	—
9	4,300	1,720	40	2,193	51	86	2	301	7	—
10	4,500	2,115	47	2,250	50	135	3	—	—	—
11	4,600	2,024	44	2,300	50	184	4	92	2	—

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-nuclears	%	Eosino-phils	%	Basophils	%
12	4,800	2,208	46	2,496	52	48	1	—	—	48	1
13	5,000	2,750	55	2,000	40	150	3	100	2	—	—
14	5,100	1,989	39	2,754	64	153	3	204	4	—	—
15	5,200	2,080	40	3,120	60	—	—	—	—	—	—
16	5,200	2,860	55	1,820	35	260	5	260	5	—	—
17	5,300	2,173	41	2,756	52	212	4	159	3	—	—
18	5,400	3,240	60	2,160	40	—	—	—	—	—	—
19	5,500	2,420	44	2,805	51	110	2	—	—	165	3
20	5,500	2,310	42	2,970	54	55	1	165	3	—	—
21	5,600	1,960	35	3,640	65	—	—	—	—	—	—
22	5,700	1,995	35	3,135	55	570	10	—	—	—	—
23	5,800	2,030	35	3,654	63	116	2	—	—	—	—
24	5,900	1,947	33	3,422	58	118	2	413	7	—	—
25	6,000	3,000	50	2,700	45	180	3	120	2	—	—
26	6,000	3,840	64	1,920	32	120	2	120	2	—	—
27	6,100	1,525	25	4,453	73	122	2	—	—	—	—
28	6,200	3,906	63	1,674	27	372	6	248	4	—	—
29	6,400	2,560	40	3,840	60	—	—	—	—	—	—
30	6,500	2,080	32	4,030	62	—	—	260	4	130	2
31	6,600	2,442	37	3,960	60	—	—	66	1	132	2
32	6,800	2,448	36	3,944	58	408	6	—	—	—	—
33	7,000	2,520	36	4,410	63	70	1	—	—	—	—
34	7,000	2,940	42	3,640	52	210	3	210	3	—	—

Thus the total leucocyte counts in apparently healthy adult male East African natives are lower than those accepted as normal in Europeans in temperate climates. And the differential leucocyte counts reveal that this difference is chiefly due to the smaller number of neutrophil polymorphs in the circulating blood.

Three practical points arise from these findings: firstly, a total count of more than 7,500 cells per c.mm., should be regarded as indicating a leucocytosis; secondly, it is only when the total count is less than 2,500 cells per c.mm.; that the patient should be considered to exhibit a leucopenia; and thirdly a differential count which exhibits the normal European distribution is relatively uncommon, and more often than not indicates the presence of disease.

The commonest and most important tropical disease is malaria. At Mackinnon Road, a large part of the population at risk was made up of the Civil Labour Force, in which it was impossible to enforce the taking of suppressive mepacrine. Cases of malignant tertian malaria were, therefore, common and in 74 proven cases total and differential leucocyte counts were performed. In 60 of these patients the total leucocyte counts were within the normal limits as we have defined them for apparently healthy adult male East African natives: in 14 patients a leucocytosis occurred, the highest figure being 12,000 cells per c.mm. In the 60 patients with normal total counts, the differential counts had a normal European distribution in 19 cases; and in the 14 patients showing a leucocytosis a European distribution occurs in 4 cases. These proportions are slightly higher than were found in the 34 normal cases but the increase is not great enough to

have statistical significance. In malignant tertian malaria, therefore, the total and differential counts are usually within normal limits, but a leucocytosis may be expected in about 1 in every 5 cases.

TABLE II.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM PROVEN M.T. MALARIA

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	2,500	1,000	40	1,200	48	250	10	50	2	—	—
2	2,800	1,792	64	840	30	56	2	112	4	—	—
3	2,900	1,450	50	1,160	40	290	10	—	—	—	—
4	3,000	1,050	35	1,500	50	—	—	450	15	—	—
5	3,200	1,184	37	1,920	60	96	3	—	—	—	—
6	3,400	1,190	35	2,210	65	—	—	—	—	—	—
7	3,500	1,400	40	1,990	57	105	3	—	—	—	—
8	3,600	1,440	35	2,540	65	—	—	—	—	—	—
9	3,800	1,178	31	2,880	60	76	2	266	7	—	—
10	3,800	1,710	45	2,090	55	—	—	—	—	—	—
11	3,800	950	25	2,850	75	—	—	—	—	—	—
12	3,900	1,833	47	1,950	50	117	3	—	—	—	—
13	3,900	2,847	73	975	25	39	1	—	—	39	1
14	4,000	2,000	50	1,600	40	120	3	280	7	—	—
15	4,000	1,600	40	2,400	60	—	—	—	—	—	—
16	4,000	1,760	44	1,800	45	120	3	320	8	—	—
17	4,200	2,310	55	1,680	40	126	3	84	2	—	—
18	4,200	1,806	48	2,310	55	42	1	—	—	42	1
19	4,500	2,025	45	2,475	55	—	—	—	—	—	—
20	4,500	630	14	3,825	85	—	—	45	1	—	—
21	4,600	1,978	43	2,300	50	138	3	184	4	—	—
22	4,600	1,932	42	2,530	55	138	3	—	—	—	—
23	4,700	2,209	47	2,021	43	94	2	376	8	—	—
24	4,800	2,400	50	2,304	48	96	2	—	—	—	—
25	4,800	2,784	58	1,872	39	96	2	48	1	—	—
26	4,800	1,920	40	2,880	60	—	—	—	—	—	—
27	5,000	2,200	44	2,500	50	300	6	—	—	—	—
28	5,000	2,050	41	2,800	56	150	3	—	—	—	—
29	5,100	3,315	65	1,530	30	153	3	102	2	—	—
30	5,200	2,236	42	2,860	55	104	2	—	—	—	—
31	5,300	2,120	40	3,180	60	—	—	—	—	—	—
32	5,400	1,998	37	3,348	62	54	1	—	—	—	—
33	5,500	2,145	39	3,355	61	—	—	—	—	—	—
34	5,500	3,190	58	2,200	40	110	2	—	—	—	—
35	5,500	2,420	44	2,530	46	330	6	220	4	—	—
36	5,500	2,915	53	2,200	40	110	2	275	5	—	—
37	5,600	3,360	60	2,184	39	56	1	—	—	—	—
38	5,600	3,304	59	1,960	35	224	4	112	2	—	—
39	5,700	2,565	45	3,135	55	—	—	—	—	—	—
40	5,800	2,552	44	2,900	50	232	4	116	2	—	—
41	5,900	2,596	44	2,950	50	118	2	59	1	177	3
42	6,000	3,540	59	2,400	40	60	1	—	—	—	—
43	6,000	1,980	33	3,600	60	180	3	240	4	—	—
44	6,000	3,900	65	1,800	30	180	3	120	2	—	—
45	6,100	1,830	30	3,904	64	61	1	305	5	—	—

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
46	6,200	4,650	75	1,550	25	—	—	—	—	—	—
47	6,200	2,170	35	3,968	64	62	1	—	—	—	—
48	6,400	2,176	34	3,968	62	128	2	—	—	128	2
49	6,500	3,900	60	2,210	34	195	3	195	3	—	—
50	6,500	3,900	60	1,950	30	650	10	—	—	—	—
51	6,500	3,250	50	3,250	50	—	—	—	—	—	—
52	6,500	2,600	40	3,575	55	260	4	65	1	—	—
53	6,500	3,445	53	2,600	40	195	3	65	1	195	3
54	6,600	4,290	65	1,980	30	66	1	132	2	132	2
55	6,800	4,216	62	2,312	34	136	2	136	2	—	—
56	6,900	3,864	56	2,760	40	276	4	—	—	—	—
57	7,000	2,800	40	3,710	53	140	2	350	5	—	—
58	7,000	3,010	43	3,710	53	280	4	—	—	—	—
59	7,000	2,030	29	4,900	70	70	1	—	—	—	—
60	7,500	4,350	58	2,850	38	300	4	—	—	—	—
61	7,800	3,900	50	3,822	49	78	1	—	—	—	—
62	8,000	2,560	32	5,200	65	240	3	—	—	—	—
63	9,000	3,510	39	4,050	45	720	8	720	8	—	—
64	9,200	4,140	45	5,060	55	—	—	—	—	—	—
65	9,300	4,092	44	5,208	56	—	—	—	—	—	—
66	9,500	5,700	60	3,420	36	190	2	190	2	—	—
67	10,000	3,800	38	4,800	48	1,000	10	400	4	—	—
68	10,000	4,800	48	5,200	52	—	—	—	—	—	—
69	10,500	4,725	45	5,250	50	315	3	210	2	—	—
70	10,500	4,500	43	5,775	55	—	—	225	2	—	—
71	10,500	9,345	89	1,050	10	105	1	—	—	—	—
72	11,000	8,140	74	2,200	20	440	4	270	2	—	—
73	11,000	5,390	49	5,500	50	110	1	—	—	—	—
74	12,000	7,800	65	3,000	25	720	6	480	4	—	—

Another tropical disease that is common in East Africa is schistosomiasis. Total and differential leucocyte counts were performed on 38 patients suffering from this disease. In 25 patients, the total and differential counts were within normal limits. In 10 patients there was a leucocytosis associated with an increase of neutrophil polymorphs in the circulating blood and probably due to the presence of secondary infection in the bladder or bowel. In 3 patients there was a leucocytosis associated with a marked eosinophilia. Eosinophilia was observed in only 9 out of the 38 patients and was found to be of small diagnostic or prognostic value. In schistosomiasis, therefore, the total and differential leucocyte counts are usually within normal limits unless a marked eosinophilia or the presence of secondary infection leads to a leucocytosis.

TABLE III.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM SCHISTOSOMIASIS

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	2,500	1,125	45	1,125	45	250	10	—	—	—	—
2	3,000	1,410	47	1,410	47	90	3	90	3	—	—
3	3,500	2,275	65	1,225	35	—	—	—	—	—	—
4	3,600	1,908	53	1,584	44	108	3	—	—	—	—

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
5	3,800	1,900	50	1,710	45	76	2	76	2	38	1
6	4,000	2,520	63	800	20	80	2	600	15	—	—
7	5,200	2,496	48	1,872	36	520	10	312	6	—	—
8	5,400	1,728	32	3,564	66	108	2	—	—	—	—
9	5,600	2,744	49	2,464	44	224	4	168	3	—	—
10	5,900	3,953	67	1,534	26	295	5	118	2	—	—
11	6,000	4,260	71	1,500	25	180	3	60	1	—	—
12	6,000	2,440	49	2,760	46	180	3	120	2	—	—
13	6,000	3,420	57	2,160	36	240	4	120	2	60	1
14	6,200	2,604	42	3,100	50	310	5	186	3	—	—
15	6,300	3,654	58	3,394	38	63	1	189	3	—	—
16	6,400	2,560	40	2,560	40	192	3	1,152	18	—	—
17	6,500	4,810	74	1,235	19	325	5	130	2	—	—
18	6,600	2,772	42	3,630	55	66	1	66	1	66	1
19	6,800	1,700	25	4,964	73	—	—	132	2	—	—
20	6,900	3,105	45	3,312	48	483	7	—	—	—	—
21	7,000	3,290	47	3,150	45	—	—	560	8	—	—
22	7,000	3,990	57	1,890	27	420	6	700	10	—	—
23	7,400	3,848	52	2,220	30	444	6	888	12	—	—
24	7,500	3,975	53	2,850	38	375	5	225	3	75	1
25	7,500	3,825	51	2,700	36	150	2	750	10	75	1
26	7,600	3,724	49	3,496	46	228	3	152	2	—	—
27	7,700	3,157	41	4,004	52	231	3	308	4	—	—
28	7,800	4,446	57	3,120	40	78	1	156	2	—	—
29	8,000	5,760	72	2,160	27	—	—	80	1	—	—
30	8,200	5,412	66	2,132	26	410	5	246	3	—	—
31	8,500	3,995	47	4,250	50	—	—	255	3	—	—
32	8,600	3,526	41	3,182	37	86	1	1,806	21	—	—
33	9,000	5,760	64	2,970	33	270	3	—	—	—	—
34	9,000	5,850	65	3,060	34	—	—	90	1	—	—
35	9,000	7,850	85	1,350	15	—	—	—	—	—	—
36	10,000	6,200	62	3,400	34	200	2	200	2	—	—
37	13,000	6,630	51	4,550	35	390	3	1,430	11	—	—
38	13,000	6,110	47	3,900	30	910	7	2,080	16	—	—

The greater part of military medical practice in East Africa, however, is concerned not with the specific tropical diseases but with the common diseases of the respiratory tract, to which the natives are particularly susceptible.

Total and differential leucocyte counts were performed on 110 patients suffering from bronchitis, on 43 patients suffering from bronchopneumonia, and on 58 patients suffering from lobar pneumonia. In all these groups of patients there was a tendency for leucocytosis, associated with an increase in the number of neutrophil polymorphs in the circulating blood, to occur and this tendency paralleled the severity of the infection. Thus of 110 patients with bronchitis, 46 (or 42 per cent) showed a leucocytosis; of 43 patients with bronchopneumonia 27 (or 63 per cent) showed a leucocytosis; and of 58 patients with lobar pneumonia, 40 (or 70 per cent) showed a leucocytosis. Moreover in these three groups of patients a normal European distribution in the differential count was absent in only 10 cases (0.475 per cent). Consequently we came to regard any

differential count with a normal European distribution as indicative of a respiratory infection until it was proved otherwise, unless, of course, some other obvious cause such as tonsillitis or forunculosis was present. This rule was proved most useful in practice.

TABLE IV.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM BRONCHITIS

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	3,000	2,190	73	750	25	30	1	30	1	—	—
2	3,500	700	20	2,450	70	70	2	210	6	70	2
3	3,500	2,100	60	1,155	33	245	7	—	—	—	—
4	4,000	2,000	50	1,800	45	120	3	80	2	—	—
5	4,000	1,960	49	1,840	46	120	3	80	2	—	—
6	4,000	1,640	41	2,000	50	200	5	160	4	—	—
7	4,000	2,000	50	1,720	43	200	5	80	2	—	—
8	4,500	2,070	46	2,070	46	180	4	180	4	—	—
9	5,000	2,600	52	2,000	40	200	4	200	4	—	—
10	5,000	2,500	50	2,350	47	—	—	150	3	—	—
11	5,000	2,750	55	1,500	30	600	12	150	3	—	—
12	5,000	3,250	65	1,500	30	200	4	50	1	—	—
13	5,000	3,500	70	1,200	24	100	2	200	4	—	—
14	5,000	3,250	65	1,500	30	150	3	100	2	—	—
15	5,000	2,550	51	2,200	44	200	4	50	1	—	—
16	5,000	2,500	50	2,200	44	150	3	150	3	—	—
17	5,000	2,550	51	2,300	46	100	2	50	1	—	—
18	5,200	4,056	78	1,040	20	104	2	—	—	—	—
19	5,200	2,496	48	2,392	46	104	2	208	4	—	—
20	5,200	3,536	68	1,300	25	52	1	312	6	—	—
21	5,200	3,536	68	1,248	24	104	2	312	6	—	—
22	5,200	2,704	52	2,080	40	312	6	104	2	—	—
23	5,300	3,551	67	1,590	30	106	2	53	1	—	—
24	5,400	3,078	57	2,160	40	—	—	162	3	—	—
25	5,500	3,135	57	2,200	40	—	—	165	3	—	—
26	5,500	2,805	51	2,420	44	110	2	165	3	—	—
27	5,600	3,248	58	2,016	36	168	3	168	3	—	—
28	5,700	3,477	61	1,824	32	228	4	171	3	—	—
29	5,800	3,422	59	1,798	31	290	5	290	5	—	—
30	5,900	3,599	61	2,065	35	118	2	118	2	—	—
31	5,900	2,655	45	2,950	50	177	3	118	2	—	—
32	6,000	3,960	66	1,680	28	180	3	180	3	—	—
33	6,000	3,000	50	2,520	42	240	4	240	4	—	—
34	6,000	3,660	61	1,980	33	180	3	180	3	—	—
35	6,000	3,180	53	2,400	40	240	4	180	3	—	—
36	6,000	2,280	38	3,600	60	120	2	—	—	—	—
37	6,000	3,180	53	2,400	40	300	5	120	2	—	—
38	6,000	3,120	52	2,640	44	60	1	60	1	—	—
39	6,100	3,294	54	2,440	40	61	1	305	5	—	—
40	6,100	3,904	64	1,830	30	244	4	122	2	—	—
41	6,200	4,154	67	1,860	30	124	2	62	1	—	—
42	6,400	3,584	56	2,560	40	192	3	64	1	—	—
43	6,600	4,092	62	2,112	32	264	4	132	2	—	—
44	7,000	4,690	67	2,100	30	70	1	140	2	—	—

Total and Differential Leucocyte Counts

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils %
45	7,000	3,850	55	2,800	40	210	3	140	2	— —
46	7,000	3,500	50	3,010	43	280	4	210	3	— —
47	7,000	4,480	64	2,100	30	280	4	140	2	— —
48	7,000	3,990	57	2,450	35	350	5	210	3	— —
49	7,000	2,520	36	4,200	60	210	3	70	1	— —
50	7,000	3,780	54	3,150	45	—	—	—	—	70 1
51	7,300	3,358	46	3,212	44	438	6	219	3	— —
52	7,400	6,512	88	814	11	74	1	—	—	— —
53	7,500	3,750	50	3,000	40	300	4	450	6	— —
54	7,500	4,425	59	2,625	35	300	4	150	2	— —
55	7,500	4,575	61	2,700	36	75	1	150	2	— —
56	7,500	3,675	49	3,150	42	225	3	450	6	— —
57	7,600	5,168	68	1,900	25	304	4	228	3	— —
58	7,800	4,524	58	2,808	36	78	1	390	5	— —
59	7,800	4,212	54	3,120	40	312	4	156	2	— —
60	7,900	4,503	57	3,002	38	237	3	158	2	— —
61	8,000	4,080	51	3,200	40	480	6	240	3	— —
62	8,000	4,480	56	2,800	35	480	6	240	3	— —
63	8,000	4,000	50	3,600	45	240	3	160	2	— —
64	8,000	4,560	57	2,800	35	400	5	240	3	— —
65	8,000	4,640	58	2,400	30	480	6	480	6	— —
66	8,000	5,200	65	2,400	30	240	3	160	2	— —
67	8,000	4,480	56	3,200	40	240	3	80	1	— —
68	8,000	4,560	57	3,200	40	160	2	80	1	— —
69	8,000	5,360	67	2,400	30	160	2	80	1	— —
70	8,000	2,480	31	5,200	65	320	4	—	—	— —
71	8,000	4,560	57	3,120	39	240	3	80	1	— —
72	8,200	4,510	55	2,870	35	492	6	328	4	— —
73	8,400	5,460	65	2,868	27	252	3	420	5	— —
74	8,500	5,440	64	2,550	30	255	3	255	3	— —
75	8,500	5,950	70	2,380	28	85	1	85	1	— —
76	8,600	6,278	73	2,150	25	172	2	—	—	— —
77	8,800	6,688	76	1,760	20	352	4	—	—	— —
78	9,000	6,120	68	2,700	30	180	2	—	—	— —
79	9,000	6,570	73	1,890	21	180	2	360	4	— —
80	9,000	5,670	63	2,700	30	360	4	270	3	— —
81	9,000	6,120	68	2,430	27	270	3	180	2	— —
82	9,000	5,850	65	2,700	30	270	3	180	2	— —
83	9,000	5,670	63	2,970	33	180	2	180	2	— —
84	9,000	5,940	66	2,700	30	180	2	180	2	— —
85	9,200	5,060	55	3,220	35	552	6	368	4	— —
86	9,400	6,768	72	2,162	23	282	3	188	2	— —
87	9,500	4,940	52	4,275	45	190	2	95	1	— —
88	9,600	6,528	68	2,592	27	288	3	192	2	— —
89	9,600	4,800	50	4,128	43	192	2	480	5	— —
90	10,000	7,400	74	2,100	21	300	3	200	2	— —
91	10,000	7,300	73	2,200	22	300	3	200	2	— —
92	10,000	6,600	66	2,900	29	300	3	200	2	— —
93	10,000	7,300	73	2,300	23	200	2	200	2	— —
94	10,000	7,200	72	2,100	21	400	4	300	3	— —
95	10,000	6,900	69	2,200	22	500	5	400	5	— —
96	10,000	6,900	69	1,700	17	400	4	1,000	110	— —

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
97	10,000	6,800	68	2,800	28	400	4	—	—	—	—
98	10,200	8,364	82	1,530	15	204	2	102	1	—	—
99	10,200	7,242	71	2,754	27	204	2	—	—	—	—
100	10,400	7,800	75	2,392	23	208	2	—	—	—	—
101	10,600	7,632	72	2,226	21	106	1	636	6	—	—
102	11,000	5,720	52	4,180	38	660	6	440	4	—	—
103	11,000	6,600	60	3,300	33	440	4	330	3	—	—
104	11,000	8,250	75	2,200	20	440	4	110	1	—	—
105	11,500	9,430	82	2,070	18	—	—	—	—	—	—
106	11,800	8,260	70	3,304	28	—	—	236	2	—	—
107	13,000	9,750	75	2,340	18	650	5	260	2	—	—
108	14,000	9,660	69	3,220	23	840	6	280	2	—	—
109	14,000	10,920	78	2,100	15	560	4	420	3	—	—
110	14,500	10,440	72	2,900	20	580	4	580	4	—	—

TABLE V.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM BRONCHOPNEUMONIA

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	4,000	2,080	52	1,780	42	240	6	—	—	—	—
2	4,500	2,565	57	1,800	40	—	—	90	2	45	1
3	5,000	2,950	59	1,750	35	300	6	—	—	—	—
4	5,200	2,080	40	2,028	39	416	8	676	13	—	—
5	5,400	2,970	55	2,160	40	270	5	—	—	—	—
6	5,500	4,070	74	1,100	20	165	3	165	3	—	—
7	5,600	2,968	53	2,520	45	112	2	—	—	—	—
8	6,000	3,600	60	2,040	34	120	2	240	4	—	—
9	6,000	3,900	65	1,500	25	480	8	120	2	—	—
10	6,300	3,465	55	2,520	40	252	4	63	1	—	—
11	6,500	3,770	58	2,990	46	130	2	260	4	—	—
12	6,800	3,876	57	2,320	35	340	5	204	3	—	—
13	7,000	3,290	47	3,500	50	—	—	280	3	—	—
14	7,000	3,150	45	3,150	45	700	10	—	—	—	—
15	7,200	3,960	55	3,096	43	72	1	72	1	—	—
16	7,500	4,875	65	2,250	30	150	2	225	3	—	—
17	8,000	4,800	60	2,800	35	240	3	160	2	—	—
18	8,000	4,320	54	3,200	40	240	3	240	3	—	—
19	8,200	6,232	76	1,640	20	246	3	82	1	—	—
20	8,400	4,872	58	3,360	40	82	1	82	1	—	—
21	8,500	4,250	50	4,080	48	—	—	170	2	—	—
22	8,600	4,988	58	3,010	35	258	3	344	4	—	—
23	8,700	6,003	69	2,175	25	522	6	—	—	—	—
24	8,800	5,632	64	2,640	30	352	4	176	2	—	—
25	8,900	5,696	64	2,848	32	178	2	178	2	—	—
26	9,000	4,320	48	3,600	40	810	9	270	3	—	—
27	9,000	5,850	65	2,250	25	720	8	180	2	—	—
28	10,000	7,700	77	1,800	18	300	3	200	2	—	—
29	10,000	7,600	76	2,000	20	300	3	100	1	—	—
30	10,000	6,800	68	2,900	29	200	2	100	1	—	—
31	10,000	7,600	76	2,000	20	200	2	200	2	—	—
32	10,000	7,200	72	2,400	24	300	3	100	1	—	—
33	10,000	6,000	60	2,800	28	400	4	800	8	—	—
34	10,500	7,560	72	2,520	24	—	—	420	4	—	—

Total and Differential Leucocyte Counts

<i>Serial</i>	<i>Total counts</i>	<i>Neutrophil polymorphs</i>	<i>%</i>	<i>Lymphocytes</i>	<i>%</i>	<i>Mono-cytes</i>	<i>%</i>	<i>Eosino-phils</i>	<i>%</i>	<i>Basophils</i>	<i>%</i>
35	10,600	8,056	76	2,120	20	212	2	212	2	—	—
36	10,800	7,128	66	2,700	25	540	5	432	4	—	—
37	11,000	8,910	81	1,760	16	330	3	—	—	—	—
38	12,000	8,400	70	3,000	25	360	3	240	2	—	—
39	13,000	8,840	68	2,990	23	910	7	260	2	—	—
40	15,000	11,100	74	3,750	25	—	—	—	—	150	1
41	15,000	12,000	80	2,400	16	450	3	150	1	—	—
42	16,000	11,840	74	3,520	22	640	4	—	—	—	—
43	17,000	13,940	82	2,550	15	340	2	170	1	—	—

TABLE VI.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM LOBAR PNEUMONIA

<i>Serial</i>	<i>Total counts</i>	<i>Neutrophil polymorphs</i>	<i>%</i>	<i>Lymphocytes</i>	<i>%</i>	<i>Mono-cytes</i>	<i>%</i>	<i>Eosino-phils</i>	<i>%</i>	<i>Basophils</i>	<i>%</i>
1	3,000	1,170	39	1,500	50	300	10	30	1	—	—
2	4,500	3,600	80	900	20	—	—	—	—	—	—
3	5,000	2,800	56	2,050	41	—	—	150	3	—	—
4	5,200	3,224	62	1,820	35	—	—	104	2	52	1
5	5,500	2,640	48	2,530	46	165	3	110	2	55	1
6	6,000	2,940	49	2,700	45	180	3	120	2	60	1
7	6,000	4,740	79	900	15	300	5	60	1	—	—
8	6,200	3,410	55	2,790	45	—	—	—	—	—	—
9	6,500	3,702	57	2,470	38	130	2	195	3	—	—
10	6,600	4,290	65	1,980	30	66	1	66	1	198	3
11	7,000	3,710	53	3,010	43	140	2	140	2	—	—
12	7,000	3,710	53	3,080	44	70	1	140	2	—	—
13	7,000	4,410	63	2,100	30	350	5	140	2	—	—
14	7,000	3,990	57	2,800	40	140	2	70	1	—	—
15	7,200	3,528	49	3,456	48	216	3	—	—	—	—
16	7,500	5,400	72	1,875	25	225	3	—	—	—	—
17	7,600	6,004	79	1,520	20	76	1	—	—	—	—
18	7,800	4,446	57	2,964	38	312	4	78	1	—	—
19	8,000	6,640	83	1,200	15	160	2	—	—	—	—
20	8,000	5,040	63	2,800	35	160	2	—	—	—	—
21	8,000	6,800	85	1,200	15	—	—	—	—	—	—
22	8,000	3,920	49	3,600	45	320	4	160	2	—	—
23	8,000	4,800	60	2,800	35	240	3	160	2	—	—
24	8,500	6,630	78	1,700	20	190	2	—	—	—	—
25	9,000	8,460	94	540	6	—	—	—	—	—	—
26	9,200	7,636	83	1,012	11	276	3	276	3	—	—
27	9,500	6,935	73	2,375	25	95	1	95	1	—	—
28	9,600	7,200	75	2,112	22	288	3	—	—	—	—
29	10,000	5,700	57	3,500	35	800	8	—	—	—	—
30	10,000	7,300	73	2,200	22	400	4	100	1	—	—
31	10,000	7,000	70	3,000	30	—	—	—	—	—	—
32	10,000	8,000	80	1,900	19	100	1	—	—	—	—
33	10,800	5,400	50	3,780	35	540	5	756	7	324	3
34	10,800	6,048	56	3,564	33	432	4	756	7	—	—
35	10,800	7,884	73	2,268	21	432	4	216	2	—	—
36	11,000	7,810	71	2,420	22	660	6	110	1	—	—
37	11,200	6,608	59	3,808	34	—	—	784	7	—	—
38	11,400	8,208	72	2,736	24	342	3	—	—	114	1

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
39	11,500	9,890	86	1,380	12	230	2	—	—	—	—
40	11,800	8,496	72	2,360	20	590	5	354	3	—	—
41	13,000	10,920	84	1,950	15	130	1	—	—	—	—
42	13,000	8,450	65	3,250	25	520	4	780	6	—	—
43	14,000	10,500	75	2,800	20	280	2	420	3	—	—
44	14,000	11,200	80	2,240	16	280	2	280	2	—	—
45	14,000	11,200	80	2,380	17	280	2	140	1	—	—
46	15,000	11,400	76	2,300	22	300	2	—	—	—	—
47	15,000	10,500	70	4,500	30	—	—	—	—	—	—
48	15,200	12,008	79	3,040	20	152	1	—	—	—	—
49	15,800	10,744	68	3,950	25	632	4	474	3	—	—
50	16,000	12,480	78	3,200	20	320	2	—	—	—	—
51	16,000	9,120	57	6,400	40	160	1	320	2	—	—
52	16,000	12,800	80	2,720	17	—	—	480	3	—	—
53	16,800	14,112	84	2,520	15	168	1	—	—	—	—
54	17,000	13,940	82	2,550	15	510	3	—	—	—	—
55	17,000	13,430	79	2,550	15	680	4	340	2	—	—
56	19,000	13,490	71	2,090	11	3,420	18	—	—	—	—
57	19,000	13,300	70	3,800	20	1,710	9	190	1	—	—
58	19,200	13,440	70	5,184	27	384	2	192	1	—	—

In addition to the pyogenic infections of the respiratory tract, the East African native is highly susceptible to infection with the tubercle bacillus. Total and differential leucocyte counts were performed in 31 patients so infected. A leucocytosis, associated with an increase in the number of neutrophil polymorphs in the circulating blood, was present in 9 cases and in the remaining 22 cases the distribution in the differential count had reverted to the European type. *The total and differential counts were, therefore, of no help in differentiating between tuberculous and pyogenic infection of the respiratory tract.*

TABLE VII.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM PULMONARY TUBERCULOSIS

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	3,200	1,952	61	1,216	38	—	—	32	1	—	—
2	4,000	2,200	55	1,560	39	120	3	120	3	—	—
3	4,000	2,200	55	1,680	42	80	2	40	1	—	—
4	4,500	2,970	66	1,395	31	90	2	45	1	—	—
5	4,800	2,400	50	2,016	42	240	5	96	2	48	1
6	5,000	2,700	54	2,000	40	250	5	50	1	—	—
7	5,000	3,000	60	1,550	31	100	2	350	7	—	—
8	5,000	2,800	56	1,950	39	150	3	100	2	—	—
9	5,100	3,060	60	1,530	30	—	—	510	10	—	—
10	5,200	2,392	46	2,496	48	312	6	—	—	—	—
11	5,500	3,190	58	1,870	34	165	3	220	4	55	1
12	5,800	2,900	50	2,436	42	290	5	174	3	—	—
13	6,000	3,300	55	2,520	42	180	3	—	—	—	—
14	6,000	3,660	61	1,620	27	—	—	720	12	—	—
15	6,200	3,596	58	2,542	41	62	1	—	—	—	—
16	6,400	3,392	52	2,496	39	384	6	—	—	128	2

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
17	6,500	3,640	56	2,470	38	64	1	325	5	—	—
18	6,600	2,970	45	1,914	29	396	6	1,320	20	—	—
19	6,900	3,933	57	2,001	29	207	3	690	10	69	1
20	7,000	4,410	63	2,100	30	210	3	280	4	—	—
21	7,200	5,544	77	1,368	19	144	2	144	2	—	—
22	7,500	4,500	60	2,615	35	150	2	225	3	—	—
23	7,800	3,978	51	3,276	42	156	2	390	5	—	—
24	8,000	5,680	71	2,080	26	160	2	80	1	—	—
25	8,200	4,838	59	3,034	37	82	1	246	3	—	—
26	8,400	5,460	65	2,436	24	252	3	252	3	—	—
27	8,500	4,165	49	3,995	47	—	—	340	4	—	—
28	9,000	4,410	49	4,050	45	180	2	360	4	—	—
29	10,000	7,000	70	3,000	30	—	—	—	—	—	—
30	10,500	6,300	60	2,835	27	630	6	735	7	—	—
31	10,500	7,245	69	2,730	26	210	2	315	3	—	—

Total and differential leucocyte counts were also performed in 20 patients suffering from a variety of pyogenic infections. A leucocytosis associated with an increase in the number of neutrophil polymorphs in the circulating blood was present in 13 of these patients and in the remainder the distribution in the differential count had reverted to the European type.

TABLE VIII.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM MISCELLANEOUS PYOGENIC INFECTIONS

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	4,400	2,860	65	1,452	33	88	2	—	—	—	—
2	4,800	2,880	60	1,776	37	96	2	48	1	—	—
3	5,200	3,692	71	1,352	26	156	3	—	—	—	—
4	5,500	3,190	58	2,035	37	220	4	55	1	—	—
5	5,800	3,480	60	2,320	40	—	—	—	—	—	—
6	6,000	3,360	56	2,280	38	180	3	180	3	—	—
7	7,500	4,050	54	2,025	27	675	9	750	10	—	—
8	7,900	6,083	77	1,659	21	—	—	158	2	—	—
9	8,000	5,200	65	2,400	30	80	1	320	4	—	—
10	8,000	4,160	52	3,440	45	160	2	240	3	—	—
11	8,300	3,901	47	3,154	38	83	1	1,162	14	—	—
12	8,800	5,456	62	2,904	33	264	3	176	2	—	—
13	9,000	6,840	76	1,980	22	—	—	—	—	180	2
14	9,200	5,336	58	3,220	35	368	4	276	3	—	—
15	10,000	6,900	69	2,900	29	200	2	—	—	—	—
16	11,000	5,500	50	4,840	44	220	2	440	4	—	—
17	12,000	9,600	80	1,680	14	600	5	120	1	—	—
18	14,000	11,200	80	2,100	15	420	3	280	2	—	—
19	20,000	14,800	74	5,200	26	—	—	—	—	—	—
20	34,000	32,300	95	1,700	5	—	—	—	—	—	—

Total and differential leucocyte counts were performed in 16 patients with non-specific diarrhoea or bacillary dysentery, who originally presented with fever but without symptoms referable to the gastro-intestinal tract. A leucocy-

toxis, associated with an increase in the number of neutrophil polymorphs in the circulating blood, was present in 5 cases and in the remainder the differential count revealed a European type of distribution.

TABLE IX.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM NON-SPECIFIC DIARRHŒA OR BACILLARY DYSENTERY

<i>Serial</i>	<i>Total counts</i>	<i>Neutrophil polymorphs</i>	<i>%</i>	<i>Lymphocytes</i>	<i>%</i>	<i>Mono-cytes</i>	<i>%</i>	<i>Eosino-phils</i>	<i>%</i>	<i>Basophils</i>	<i>%</i>
1	3,000	1,500	50	1,350	45	90	3	30	1	30	1
2	4,200	2,604	62	1,554	37	42	1	—	—	—	—
3	4,500	2,250	50	1,800	40	450	10	—	—	—	—
4	4,600	2,390	52	2,024	44	184	4	—	—	—	—
5	4,800	2,928	61	1,776	37	96	2	—	—	—	—
6	5,000	3,000	60	1,700	34	300	6	—	—	—	—
7	5,000	2,500	50	2,300	46	100	2	100	2	—	—
8	5,800	3,190	55	2,378	41	174	3	58	1	—	—
9	6,500	3,900	60	2,440	36	65	1	—	—	195	3
10	7,000	3,360	48	3,290	47	140	2	210	3	—	—
11	7,500	4,050	54	2,925	39	300	4	150	2	75	1
12	8,000	4,400	55	2,240	28	560	7	800	10	—	—
13	9,500	6,650	70	2,755	29	—	—	95	1	—	—
14	9,600	5,568	58	3,360	35	384	4	288	3	—	—
15	10,000	7,300	73	2,500	25	200	2	—	—	—	—
16	11,000	7,590	69	2,750	25	440	4	220	2	—	—

Total and differential leucocyte counts were performed in 17 patients suffering from infective hepatitis.

A leucocytosis was present in 5 cases, associated with an increase in the neutrophil polymorph count 4 cases and with an eosinophilia in 1 case. In the remaining 12 cases, the European type of distribution was absent from the differential count in only 2 cases.

TABLE X.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM INFECTIVE HEPATITIS

<i>Serial</i>	<i>Total counts</i>	<i>Neutrophil polymorphs</i>	<i>%</i>	<i>Lymphocytes</i>	<i>%</i>	<i>Mono-cytes</i>	<i>%</i>	<i>Eosino-phils</i>	<i>%</i>	<i>Basophils</i>	<i>%</i>
1	4,000	2,000	50	1,800	45	80	2	120	3	—	—
2	4,400	2,288	52	1,980	45	132	3	—	—	—	—
3	4,500	2,475	55	1,800	40	90	2	135	3	—	—
4	5,000	3,250	65	1,500	30	100	2	150	3	—	—
5	5,200	3,016	58	1,976	38	104	2	104	2	—	—
6	5,200	2,340	45	2,756	53	104	2	—	—	—	—
7	5,500	3,245	59	2,090	38	110	2	55	1	—	—
8	5,800	1,624	28	3,770	65	240	4	174	3	—	—
9	6,000	3,720	62	1,800	30	300	5	180	3	—	—
10	6,500	3,315	51	2,860	44	195	3	130	2	—	—
11	6,800	4,012	59	2,380	35	272	4	136	2	—	—
12	7,000	4,200	60	2,380	34	210	3	210	3	—	—
13	8,200	5,330	65	2,378	29	246	3	246	3	—	—
14	8,200	3,690	45	3,608	44	164	2	738	9	—	—
15	10,000	7,400	74	2,400	24	100	1	100	1	—	—
16	12,000	9,000	75	2,400	20	360	3	240	2	—	—
17	13,000	8,450	65	3,900	30	520	4	130	1	—	—

Finally total and differential leucocyte counts were performed in 39 cases of short-term pyrexia of uncertain origin. In 31 of these cases the total and differential counts were within normal limits as defined above for adult male East African natives. The remainder showed a leucocytosis associated with an increase in the neutrophil polymorph count. It is our opinion that these cases of short-term fever are really cases of malaria, in which the parasitæmia is submicroscopic in density [2]. The findings in the total and differential counts in no way conflict with this hypothesis (see Table XI).

Few papers appear to have been published, which deal in any detail with the variations in the leucocyte count in adult male East African natives. Hennessey [3] performed total leucocyte counts on 50 apparently healthy convicts in Uganda and found a mean of 8,100 cells per c.mm. He did not record any differential counts. Apart from excluding convicts with malarial parasites in the blood stream or with a history of a recent overt attack of malaria, he gives no details of the criteria adopted in his assessment of healthiness. Indeed, he himself points out that no assessment can be made of the

TABLE XI.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN ADULT MALE EAST AFRICAN NATIVES SUFFERING FROM PYREXIA OF UNCERTAIN ORIGIN

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	3,500	1,505	43	1,750	50	210	6	35	1	—	—
2	3,600	2,016	56	1,368	38	—	—	216	6	—	—
3	4,000	1,720	43	2,000	50	120	3	160	4	—	—
4	4,000	2,400	60	1,600	40	—	—	—	—	—	—
5	4,000	1,600	40	2,200	55	200	5	—	—	—	—
6	4,200	1,260	30	2,520	60	210	5	210	5	—	—
7	4,500	1,575	35	2,475	55	270	6	180	4	—	—
8	4,600	1,840	40	2,530	55	184	4	44	1	—	—
9	4,800	1,680	35	2,736	57	384	8	—	—	—	—
10	4,800	2,256	47	2,400	50	144	3	—	—	—	—
11	4,900	1,666	34	2,940	60	245	5	49	1	—	—
12	5,000	2,300	46	2,500	50	100	2	100	2	—	—
13	5,200	2,548	49	2,600	50	—	—	52	1	—	—
14	5,300	2,279	43	2,650	50	265	5	106	2	—	—
15	5,400	2,592	48	2,160	40	432	8	216	4	—	—
16	5,500	2,475	45	2,750	50	165	3	110	2	—	—
17	5,600	2,240	40	2,800	50	224	4	336	6	—	—
18	5,800	2,494	43	2,900	50	290	5	116	2	—	—
19	5,900	2,419	41	3,422	58	—	—	59	1	—	—
20	6,000	2,760	46	2,880	48	180	3	180	3	—	—
21	6,000	1,980	33	3,540	59	420	7	60	1	—	—
22	6,100	2,623	43	3,355	55	—	—	122	2	—	—
23	6,200	2,666	43	3,100	50	372	6	62	1	—	—
24	6,300	4,158	66	1,890	30	126	2	126	2	—	—
25	6,400	2,752	43	3,392	53	—	—	256	4	—	—
26	6,500	2,925	45	3,120	48	130	2	325	5	—	—
27	6,600	2,606	41	3,630	55	264	4	—	—	—	—
28	6,800	1,564	23	4,828	71	264	3	264	3	—	—
29	6,900	4,002	58	2,760	40	138	2	—	—	—	—

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
30	7,000	3,990	57	2,800	40	140	2	70	1	—	—
31	7,000	4,130	59	2,450	35	280	4	140	2	—	—
32	7,600	4,408	58	2,736	36	152	2	304	4	—	—
33	8,000	4,240	53	3,200	40	240	3	320	4	—	—
34	8,000	5,600	70	2,080	26	160	2	160	2	—	—
35	8,800	4,664	53	3,168	36	176	2	792	9	—	—
36	9,000	6,030	67	2,790	31	180	2	—	—	—	—
37	9,200	5,060	55	3,220	35	184	2	736	8	—	—
38	9,600	6,432	67	2,880	30	192	2	96	1	—	—
39	11,000	5,060	46	4,950	45	660	6	330	3	—	—

effects of parasitic infestation on his results—a statement which suggests that his material was not as carefully screened as ours. It may well be that this explains the discrepancies in our results.

In seeking for explanations of the diminished neutrophil polymorph count which we had found in 3 out of every 4 apparently healthy adult male East African natives we initially postulated racial and/or dietetic factors as likely causes. But total and differential leucocyte counts performed on 33 adult male Europeans, who had been screened in exactly the same manner as the East African natives before being deemed healthy, revealed that 8 out of these 33 Europeans had differential counts in which the normal neutrophil polymorph/lymphocyte ratio was reversed. It seems unlikely, therefore, that the alterations in the normal East African native counts can be due to either racial or dietetic factors (*see* Table XII).

Roberts [4] examined 200 healthy adult male Europeans in Nairobi. He found a mean total leucocyte count of 7,600 cells per c.mm. with a range from 4,000 to 9,900 per c.mm. He also obtained weekly serial counts on 12 newly arrived R.A.F. personnel. During a five-week period, the neutrophil polymorphs fell from 58 per cent to 50 per cent of the total counts, while the average total count rose from 7,400 to 9,400 cells per c.mm. He concluded that changes in the leucocyte series appear to be influenced both by altitude and sun, and that polymorphonuclear reduction takes place in the heat of the Red Sea with a further reduction caused by altitude on arrival at Nairobi.

The 8 Europeans, in whom we found reversal of the polymorph/lymphocyte ratio, were all encountered at Mackinnon Road at an altitude of about 1,100 ft. No such reversal was found in the 18 Europeans examined at Nairobi at an altitude of 5,500 ft.; they all had normal total differential leucocyte counts. A further 12 Europeans with reversal of the polymorph/lymphocyte ratio were encountered at Mackinnon Road, suffering from either malignant tertian malaria or short-term fevers—diseases which in East African natives have little effect on the leucocyte count. No such cases have been encountered in Nairobi. While, therefore, we agree with Roberts that sunlight is the most likely cause of the diminution in the neutrophil polymorph count, our results give no support to his contention that altitude also has an effect upon the neutrophil polymorph count.

TABLE XII.—TOTAL AND DIFFERENTIAL LEUCOCYTE COUNTS IN APPARENTLY HEALTHY EUROPEAN MALE ADULTS SERVING IN EAST AFRICA

Serial	Total counts	Neutrophil polymorphs	%	Lymphocytes	%	Mono-cytes	%	Eosino-phils	%	Basophils	%
1	4,000	2,280	57	1,560	39	120	3	40	1	—	—
2	4,600	2,852	62	1,518	33	184	4	46	1	—	—
3	5,000	3,150	63	1,800	36	—	—	50	1	—	—
4	5,200	2,808	54	2,340	45	—	—	52	1	—	—
5	5,400	2,808	52	2,538	47	54	1	—	—	—	—
6	5,600	4,144	74	1,344	24	112	2	—	—	—	—
7	5,600	2,856	51	2,632	47	112	2	—	—	—	—
8	5,800	3,480	60	2,262	39	58	1	—	—	—	—
9	6,000	4,080	68	1,800	30	120	2	—	—	—	—
10	6,200	3,968	64	2,046	33	—	—	186	3	—	—
11	6,200	3,472	56	2,356	38	372	6	—	—	—	—
12	6,400	2,752	43	3,200	50	320	5	128	2	—	—
13	6,400	2,368	37	3,584	56	64	1	384	6	—	—
14	6,600	1,716	26	4,752	72	66	1	—	—	66	1
15	6,600	2,640	40	3,498	53	264	4	198	3	—	—
16	6,800	4,488	66	2,108	31	204	3	—	—	—	—
17	6,800	3,740	55	2,448	36	340	5	272	4	—	—
18	7,000	1,680	24	4,620	66	420	6	280	4	—	—
19	7,000	3,500	50	2,730	39	210	3	350	5	210	3
20	7,000	3,850	55	2,870	41	140	2	70	1	70	1
21	7,200	4,032	56	2,664	37	288	4	216	3	—	—
22	7,200	4,104	57	3,096	43	—	—	—	—	—	—
23	7,400	2,442	33	4,366	59	296	4	296	4	—	—
24	7,800	3,822	49	3,744	48	78	1	78	1	78	1
25	8,000	4,400	55	3,280	41	80	1	80	1	160	2
26	8,000	5,360	67	2,160	27	320	4	160	2	—	—
27	8,000	6,240	78	1,200	15	320	4	240	3	—	—
28	8,200	4,756	58	3,116	38	246	3	82	1	—	—
29	8,400	3,612	43	4,620	55	—	—	168	2	—	—
30	8,500	5,695	57	2,635	31	170	2	—	—	—	—
31	8,900	4,549	51	4,094	46	178	2	89	1	—	—
32	9,100	5,915	65	2,912	32	273	3	—	—	—	—
33	9,800	7,056	72	2,450	25	98	1	196	2	—	—

From the practical point of view, total and differential leucocyte counts have proved most useful in two ways. Firstly, in the adult male East African native admitted with fever but no symptoms or signs pointing to any particular part of the body, the counts help in differentiating between an undeclared infection, most commonly in the respiratory tract, and an attack of malaria with a parasitemia of submicroscopic density. Secondly in patients with a frank malarial parasitemia who respond slowly to antimalarial therapy, the counts are helpful in excluding concurrent infections, particularly of the respiratory tract.

SUMMARY

Total and differential leucocyte counts have been performed on 480 adult male East African natives.

In apparently healthy natives, the total leucocyte counts are lower than

those accepted as normal for Europeans in temperate climates; and in 3 out of every 4 healthy natives the distribution of the differential count differs from that in Europeans. Both differences are due to the small number of neutrophil polymorphs in the circulating blood.

In patients suffering from malignant tertian malaria and from short-term fevers, the total and differential leucocyte counts are usually unchanged but in both groups a leucocytosis occurs in about 1 patient in every 5.

In schistosomiasis, the total and differential counts are usually unchanged unless eosinophilia is present or secondary pyogenic infection gives rise to a leucocytosis.

In patients suffering from pyogenic and dysenteric infections and from infective hepatitis a leucocytosis is common and the differential counts show a European distribution whether or not a leucocytosis occurs.

Similar findings in pulmonary tuberculosis render the total and differential leucocyte counts useless as an aid to differentiating tuberculous from pyogenic infections of the respiratory tract.

The possible causes of the small number of neutrophil polymorphs in the circulating blood of most adult male East African natives and of a small proportion of Europeans serving in East Africa are discussed.

The chief uses of leucocyte counts in military medical practice among East African natives are indicated.

REFERENCES

- [1] WHITBY and BRITTON (1946) *Disorders of the Blood*. 5th Edition.
- [2] FAIRLEY, N. H. (1947) *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **40**, No. 5.
- [3] HENNESSEY, R. S. F. (1936) *East African Medical Journal*, **13**, No. 7.
- [4] ROBERTS, J. I. (1948) *Journal of Tropical Medicine and Hygiene*, **51**, No. 12.

THE ARMED FORCES AS A CAREER FOR DOCTORS

BY

Lieut.-Colonel E. A. SMYTH, M.B., M.Ch.Orth., F.R.C.S.I.

Royal Army Medical Corps

COLONEL R. H. ROBINSON in his article "Future Medical Officers for the Army" in the R.A.M.C. Journal of February 1951 has ably discussed the disadvantages of a Service life. In his later articles, March, April and May, in the same journal, he makes suggestions to counter these factors. His suggestions are roughly:

- (1) Special conditions for doctors compared with other Army Officers.
- (2) Propaganda as an aid to recruitment.
- (3) An Army Medical School.

I will commence this article by discussing these three suggestions.

- (1) SPECIAL CONDITIONS FOR DOCTORS COMPARED WITH OTHER ARMY OFFICERS
(Apart from the Slightly Higher Rates of Pay Per Rank as at Present).

I feel sure this could never be accepted by the Heads of any of the three Services. If forced eventually, by an acute doctor shortage, to take drastic action, the Admiralty, War Office and Air Ministry would be much more likely to adopt the French system of training doctors at Government expense at existing medical schools. They would then have full control of these doctors and the conditions of service would be identical with those of combatant officers. This would probably reduce the whole status of Services doctors compared with the rest of the profession, and might result in a comparative lowering of medical standards.

There is another method which could be adopted that would avoid the necessity of special conditions for doctors while working alongside their combatant colleagues. This would be to offer a guarantee, in at least some specialties, of a voluntary transfer to the National Health Service after approximately twenty years' service, and, where not possible, the new terminal gratuity to be increased to £2,000, plus a further increase in pension.

The possibility of transferring to civil medicine was one of the great attractions of the Indian Medical Service.

Special conditions on retirement would be a reasonable means of compensating doctors for (i) their initial expensive medical education and (ii) reduced facilities for increasing professional skill compared with those obtainable in civilian practice.

It should not be forgotten that in the past R.A.M.C. doctors had certain

pension advantages compared with other officers. These advantages have disappeared in all post-war pension schemes to such an extent that today combatant officers can reach the maximum pension of their rank at an earlier age than medical officers. In addition combatant officers are now, on the average, reaching the rank of Brigadier and above younger than doctors. Since the introduction of the National Health Service the chances of retired Service doctors obtaining employment are possibly no better than in the case of other officers.

As regards the purely pension element of retirement, the medical branches should lower the qualifying age for obtaining the maximum pension of a Lieutenant-Colonel from 55 to 50. This would enable an officer wishing to retire to civilian life at 45 (with not less than twenty years' service) to obtain a pension of £527 instead of £437 as under the most recent regulations. In the case of the ranks above Lieutenant-Colonel, two years in the substantive rank should be sufficient to qualify for maximum pension of that rank (irrespective of maximum further tenure in the rank allowed). It is worth remembering that the pre-1939 Indian Medical Service pension amounted to not less than £500 per annum for the doctor who retired on completion of twenty years.

(2) PROPAGANDA

Immediately pre-1939 many accepted short-service Commissions with a view to becoming Regulars. Most of these doctors had very little knowledge of conditions in the Forces. They were attracted by the widely advertised opportunities for specialization and the good gratuities. They knew that if they found the life unsuitable they could resign and purchase a practice. Nowadays, any doctor who accepts a short-service Commission is liable to find difficulty in leaving the Forces and his liability to recall has become a very real thing. Gratuities are now less than half their pre-war value in purchasing power and general practice can now no longer be entered by purchase or any other easy way.

Doctors nowadays, as a result of National Service experience, say they are unwilling to consider the Forces as a career because:

- (1) It does not offer a reasonable certainty of continuous and adequate professional work.
- (2) They are not prepared to accept a life so full of domestic uncertainties without a prospect of more settled conditions eventually.
- (3) They consider that greater financial and professional rewards can be obtained in the National Health Service at home, and the Colonial and other Services abroad.

Service life is of such a nature that it will never be popular with doctors unless it can provide the possibility of transfer to a more fixed abode for those who may find it inconsistent with professional or family life.

If propaganda is to be of any value it must be aimed at this factor by offering guaranteed transfers to the National Health Service, or very large

pensions and gratuities in lieu. The doctor who may wish to return to civilian life in his forties must be catered for adequately. It is neither good for recruitment nor for efficiency to force some unwilling Regulars to continue to the age limit for purely financial reasons.

(3) AN ARMY MEDICAL SCHOOL

This suggestion of Colonel Robinson's is most interesting. There is the danger that such a school might become a State institution for the production of "cheap doctors" at Government expense, and consequently its graduates completely divorced from those of other medical schools. On the other hand it could produce doctors with a good background of military training and professionally more interested in Preventive than Curative medicine. They would therefore adapt themselves more happily to a Service career.

The most valuable type of doctor to the Forces would be one who has been trained roughly as follows:

- (1) About a year in a purely military capacity.
- (2) A few years of a "roving commission" in as many junior posts as possible, such as Regimental Medical Officer, Ships Surgeon, R.A.F. Station M.O., Field Hygiene Section, Field Ambulance, D.A.D.M.S., etc.
- (3) A total of about two or three years in large Service hospitals, allowing sufficient time for an apprenticeship of some months in all the specialist and administrative departments.
- (4) Some experience under the direction of a specialist in Preventive medicine.

He would now have an ideal background for administrative work in peace and war. Some would still prove unsuitable for high administrative posts, but no more so than at present, and at least they would have the advantage of a much wider experience than is usual.

Specialization in curative medicine nowadays (and more so in the future) does not "fit in" with what is required of the Regular, because curative work requires full-time devotion for life to a particular branch of medicine. The curative specialist of the future will have little or no experience of conditions outside his own speciality. The time is at hand therefore when the Forces must make the choice between:

- (1) Maintaining the present system under which they attempt to train and maintain specialists without
 - (a) providing adequate clinical work of a specialist nature,
 - (b) any reasonable assurance to specialists of being able to devote themselves whole-heartedly to their work. At present specialists are constantly aware that in time of war they will be forced into administrative work and that even in peacetime they can be transferred without warning to other work. As they become more senior the advisability of a voluntary change to administrative work must be constantly in their minds. Therefore the present system is unsuitable from both the Professional and the

Administrative sides. Personally, I have reached the stage when I am uncertain whether my periodic nightly studies should be concentrated on my speciality or training manuals and recent A.C.I.s. Yet a high standard of work is expected by the combatant branches and, in fact, the prestige of the Medical Services largely depends on the work of its specialists.

(2) Stopping all specialization in curative branches and gradually replacing Regular specialists by civilians—possibly seconded in some way from the National Health Service.

(3) The third alternative is vastly to increase the scope of hospital work by admitting a percentage of civilian patients in peacetime, and perhaps, in addition, founding a medical school on the lines suggested by Colonel Robinson. A number of highly experienced Regular specialists could then be created and given a full career in their particular specialities. In time of war they would be most useful as administrators in their own branches. They would have facilities to bring perhaps fame to Service medicine.

The reputation of professional work greatly influences both the quantity and quality of prospective candidates for Regular commissions in all branches.

I suggested in a previous article, published in the *British Medical Journal* October 1, 1949, that all Service Medical Officers should commence their careers as General Duties Officers. Following an apprenticeship to as many different departments of the Forces as possible, they should commence a schedule of training leading eventually to a division of all Regulars into one of the following three classes:

- (1) Future General Administrators.
- (2) Future Specialists in Preventive Medicine and Administration.
- (3) Future Specialists in Curative Branches only.

The rapidly changing picture of Modern Medicine makes it impossible to continue the old rule that "ALL Medical Officers will be available for ALL duties in their Medical Service."

I will complete this article by describing the advice I would give to a young doctor who might happen to consult me regarding the pros and cons of a career in the R.A.M.C. I will discuss the question under the following headings:

FINANCIAL

I agree with Colonel Robinson that civilian practice will, in the long run, pay him better; although the most recent increases in pay and pension, and the introduction of a terminal gratuity, have considerably reduced the gap. Nevertheless I believe that some private capital is still necessary in the Army, otherwise the married officer will find difficulty in ever owning such material things as a new motor car and a properly furnished house.

SOCIAL AND DOMESTIC

Frequent changes of station and accommodation must be accepted. These are usually much enjoyed by the young single officer, but naturally lead to separations of varying periods and frequency when married. For the married officer these changes entail expenses in clothes, furniture, hotels, taxis, tips, etc., which are *inadequately* covered by allowances. The lack of a fixed home, where one can accumulate and maintain personal possessions, is always a great nuisance. Speaking personally, the high cost of holidays has always been one of my difficulties while on foreign service. In the United Kingdom distances are short and much time is often spent with parents and relatives.

The loss of India has changed the whole feature of overseas service. India offered a large selection of excellent stations, high Indian Army rates of pay, subject only to local income tax, and locally-qualified Assistant Surgeons relieved R.A.M.C. officers of much of the drudgery of inoculations, form-filling, and the disposal of minor medical conditions. In a few stations there was time and scope for some private practice.

Nevertheless, although foreign service is "not what it was," it still offers the warm friendliness that always exists between Servicemen and their families, and more time and opportunity for sport and leisure than in civilian practice at home.

EDUCATION OF A FAMILY

The difficulties are enormous, as described by Colonel Robinson in his article on page 133 of the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, February 1951.

DISCIPLINE

I would again refer to Colonel Robinson's excellent presentation of this feature (same page of the Journal).

PROFESSIONAL

Preventive Medicine in the Army offers a stimulating and fruitful career. I would advise a young doctor, keen on this branch, to choose the Army. Not only are there excellent chances for practical experience, but the work is so closely linked with the Administrative Departments that the chances of reaching the highest ranks are excellent.

SPECIALIZATION IN THE CURATIVE BRANCHES

I would advise against specialization in Surgery, especially General Surgery. It is not a good career in the R.A.M.C., in spite of the fact that in overseas stations General Surgeons are perhaps the most essential of all the specialists, or at least the effects of their absence are the most dramatic.

Specialization in any branch of Surgery—particularly General Surgery—has the following disadvantages:

(1) The qualifications and training take longer, and are perhaps the most difficult.

(2) The chances of promotion to the highest ranks are comparatively poor—even the War Office Director of all Surgery in the Army nearly always holds a lower rank than a Deputy Director of Medical Services of a Home Command. The surgeon is naturally at a disadvantage on the administrative ladder compared with those who have spent most of their service in this branch, or even compared with those who have been in less exacting curative specialities.

(3) The chances of employment of ex-Surgical Specialists in civilian practice appear poorer than in the case of Specialists in Medicine, Pathology, Anæsthetics, Dermatology, or Army Health.

(4) Leisure is more interrupted than in any other branch of the R.A.M.C.

(5) Unlike the Medical Specialist, experience in tropical countries is of little or no professional value.

(6) Army Consultant Surgeons—owing to insufficient operative work—lose professional skill much more rapidly than in the case of Consultants in other lines.

Medicine, unlike Surgery, is a reasonably good speciality to select in the Army. The lack of clinical experience compared with civilian life is partially compensated by experience gained in tropical medicine. Also a physician lives a calmer and less worrying life than a surgeon.

Pathology is a much privileged speciality in the Army and offers good experience in Bacteriology and Tropical Pathology. Pathologists have been on the whole remarkably successful in reaching the highest administrative ranks.

Psychiatry is at present generously treated as regards the rank element, and allows opportunity for gaining a wide general knowledge of Army life.

The chances of a successful career for those who do not wish to specialize are excellent, but personally I believe the combination of Administrative experience, plus a speciality in Army Health, is likely to give the most satisfying and successful career obtainable in the R.A.M.C.

JUNGLE MEDICINE¹

BY

DEREK TACCHI

DURING the years 1949-50 I served with the R.A.M.C. in Malaya and for a period was R.M.O. to — Field Regt. R.A., an operational unit acting as Infantry. The following is an account of my everyday life at that time. I trust that my contemporaries of that period will be generous in their criticism.

The Regiment was operating in Negri Sembilan, a state in Southern Malaya and its H.Q. at Tampin lay 30 miles inland from the historic port of Malacca. The operational area was 4,000 square miles of jungle through which ran the "Penine" range of hills that traverses the Western half of the Peninsular. Regimental strength was divided into an H.Q. Coy. and three independent operational Batteries scattered throughout the area about 40 to 50 miles apart. The Troops under my care were entirely British but I also acted as "doctor" to neighbouring units of Gurkha and Malaya Troops who had no R.M.O. During operations I lived with the outlying Batteries, only coming down to Tampin about once weekly for conferences with the C.O. and to deal with the ever increasing mound of paper which is the lot of every Army M.O.

Mine was a "roving commission" and I literally "lived out of a suitcase" during that period for I was constantly on the move between the Batteries, never spending more than two nights with any one of them. In a way I acted as the Regiment's "grape-vine" and was the means of carrying news of operational successes, promotions and Regimental gossip from camp to camp. I kept in touch with all units by wireless and had my own W/T. set mounted on my jeep. A call for "Sunray" would find Biaggi, my batman-driver, and myself on the road in a very few minutes. We had to be constantly prepared to move at any time and our road average was in the nature of 500 miles a week. I always carried an emergency bag containing shell dressings, bandages, morphia, plasma and a giving set; also an ordinary medical bag with the usual diagnostic instruments (an auriscope was invaluable) and common drugs. Both Biaggi and I were armed as there was always present the danger of ambush, the traditional red cross being by no means respected by the guerillas. Certain roads through the wilder regions were especially dangerous and when travelling on them I had an armoured car as escort.

At each unit I equipped a small tent as an M.I. room and trained an orderly to take charge of it. The tent contained a dressing table on which

¹Reprinted by kind permission of the Author and of the Editor. *The University of Durham Medical Gazette*, Vol. 45, June 1951.

stood the supply of medicines, drugs and bandages, two beds for temporary nursing of cases not considered ill enough for hospitalization and a simple washstand. The orderly lived in the tent and it was his job to keep it always in scrupulous order. The units usually went out on jungle patrol for three or four days at a stretch and my visits were timed to coincide with the return of these patrols. The first thing I did was to hold a "foot inspection," as the troops' feet, constantly encased in jungle boots, alternately wet and dry and made to march through 30 miles of thick jungle, were often badly battered. Then after they had washed and eaten I held the traditional sick parade.

The majority of one's patients were suffering from some skin complaint. Commonly seen was tinea of the body, groin and feet, the latter requiring prompt treatment or the soldier would soon become a "write-off" as far as his Unit was concerned. Hence the importance of foot inspections. Almost as frequent was pemphigus contagiosus, a vesicular eruption of the axilla and belt region due to friction in a sweaty highly infected area. Acne vulgaris as a rule behaved very badly in the Malayan climate—the best prophylaxis being to develop a good sun tan. Otitis externa was a very common and exceedingly troublesome complaint. I found the most effective treatment was daily swabbing and removal of debris, followed by the insertion of a mag. sulph. wick until the œdema had gone and then daily wicks of 5 per cent aluminium acetate. Hyperidrosis was controlled by daily foot hygiene, 1/8,000 Pot. perman. footsoaks and the liberal use of foot powder. The men were encouraged to wear "chuplees," a type of sandal, when off duty. Impetigenous and sycotic rashes of the face and scalp were much in evidence and if not promptly treated spread with great rapidity. I used Lotio d'alibour to soak off crusts and then applied Quinolol ointment or alternately Lassar's paste with 2 per cent gentian violet. Penicillin in saline sprayed over the affected areas often resulted in a rapid cure but unfortunately this antibiotic was not always available.

Other common ailments were acute follicular tonsillitis, which responded well to sulphonamides; acute diarrhoeas, fortunately mainly bacillary; the amoebic type for some strange reason seemed to pick out the medical officers and I, myself, spent six weeks in B.M.H., Singapore, as a result.

Short-term fevers lasting two to five days were common and often the ætiology was never discovered. Some said they were a type of dengue fever but this was accepted with reservation. I had on an average only two or three cases of malaria per month, mainly B.T., as the men took a daily prophylactic tablet of Paludrine. Towards the end of my time in Malaya, however, we began to come across strains of B.T. malaria that were Paludrine resistant and the Institute of Medical Research (Malaya) were conducting field trials for this problem.

Of major illnesses I had were two cases of Leptospirosis jaundice, one fatal and two of a virus encephalitis which at first was thought to be poliomyelitis and caused quite a "stir," and incidentally a good deal of labour for myself.

Jungle sores were a great nuisance. They usually developed from untreated

cuts, abrasions or leech bites, and often proved very resistant to treatment. Inadequate epithelial proliferation was characteristic even when a healthy granulation tissue base had been formed.

Finally, some of the men developed a "Tropical Neurasthenia" due to the nervous strain of constant patrols in a dangerous terrain and an exhausting climate. I usually sent such cases down to the Regiment's rest camp at Kampong Tanjong Bidara, on the West coast just North of Malacca. Here a bungalow, on the edge of a long stretch of palm lined beach, housed the men and they spent their days swimming, sunbathing and generally being lazy. After a week or two here they returned to duty bronzed and fit and once more mentally alert.

Life consisted of long periods of relative inactivity but when an emergency arose we could be mobile in a very few minutes. One day it would be an urgent call for help from an isolated police post, which was being attacked by bandit forces. I would grab my emergency bag and pile into a truck as it moved out of camp fast in pursuit of the Battery Commander's jeep already 100 yards away and moving up into top gear. A breathtaking journey followed along narrow roads and tracks as the driver with consummate skill flung his heavy truck at the winding bends and through the half-light of deep cuttings. Slowing down just short of the police-post a reconnaissance patrol spread out ahead to investigate. Often the attackers had dispersed into the jungle and then a whistle blast from the Battalion Commander summoned me to the post where a Malayan constable with a broad grin showing around clenched teeth lay on the concrete floor—a bullet through his thigh! After giving him morphia, dressing the wound and splinting his leg I would move off with him to the nearest civilian hospital, 20 miles distant, where he was duly handed over to the civilian M.O.

Often at night I would bring sick or injured men out of the jungle area by "rail-jeep." This was an ordinary General Service jeep with bevelled iron wheels to fit the Malayan railroad track. The patrol would bring out their man at the nearest point on the track and then wireless to base for him to be picked up. It was an eerie experience, driving down the narrow single track surrounded by the enveloping shadow of the jungle except where the twin cones of our headlights showed up the complex detail of its formation in bright relief. The only sound above the "clackety-clack" of the wheels was the constant humming of the "cicada" in the trees.

Another time a convoy, ambushed at the top of a near-by pass, would send out the S O S. We would dash off in armoured cars making for the pass at top speed despite precipitous bends in the road. We would arrive whilst a fierce engagement was taking place between the guerillas, entrenched behind the natural camouflage of the high bank and our troops, making what use they could of their vehicles or a ditch, as cover. Our arrival was usually the signal for the bandit forces to melt into the jungle as they respected the two-pounder gun which the armoured car carried. Our casualties were often serious after such incidents and I found that the "cyrettes" of morphia which I carried

invaluable, as the drug could be injected quickly and efficiently. My plasma and giving set came into action many times as a badly injured man was often 30 miles from the nearest hospital. After giving First Aid on the spot I moved the casualties to the nearest Civilian Hospital, usually of the "cottage" type and having 30 to 40 beds. Here resuscitation was given, the wounds dressed and penicillin given. I started prophylactic sulphonamides on the journey back from the ambush. When the wounded had recovered sufficiently from shock to travel I moved them by ambulance to the Base Hospital at Kuala Lumpur. A journey of over 50 miles and taking three hours.

All these incidents illustrate that EVACUATION was the keyword in dealing with casualties. Those sustaining injuries in the depths of the jungle were not so fortunate. A patrol which was three days "in" could not bring a casualty out in under 36 hours, even with forced marching. The going was very tough, the country uneven and very often a track had to be cut through the undergrowth with "parang" and "matchet." The injured man had to be carried on an improvised litter and the narrow trail only allowed one bearer at each end. By day the leeches and by night mosquitoes attacked the naked flesh, and when it rained a sheet of water descended from above drenching all in a matter of seconds. It was tough for a casualty—but so were the men, and many survived this Spartan treatment. All one could do on these occasions was to relieve pain with morphia, dress the wounds with penicillin powder and prevent dehydration by giving salt and water.

Of recent months helicopters have been used to evacuate these men, descending in jungle clearings like great vultures. The casualty is placed on a stretcher fitted to a special container on the fuselage and in this he travels in relative comfort direct to Base Hospital. This is a great step forward and has long been needed.

To return to base after such a spell of "jungle bashing" was heavenly, but, to splash in a shower and wash away four days accumulation of sweat and dirt; to sit down to a plate of steak and chips after our twice daily diet of curry and rice whilst on patrol; to drink deeply of a jug of cool ale and wash away the taste of brackish salted water; to sleep once again between sheets—all this was divine! One's tent was a veritable palace on these occasions.

For operational troops the War in Malaya is hard and exhausting. They have to be ever vigilant during day after day of endless patrolling with only an occasional action. One heard the usual army grumbles but these men were constantly cheerful and got down to the job despite many difficulties. These ordinary Britons who had become jungle veterans protecting the interests of our country abroad deserve nothing but the best—which I am grieved to say they did not always get.

I consider it a great honour to have served with them and I have nothing but admiration for what they have done and are still doing.

At Random

A SERVICES SECTION, BRITISH MEDICAL ASSOCIATION

Isn't it high time that we had a Services Section of our Medical Association; a section composed of members of the three armed Services of the Crown and possibly including those of the Colonial Medical Service, a Section which will devote its attention to all aspects of medicine and the welfare of the officers in those Services?

Ever since the days of Sir James McGrigor the medical men of the Services have gradually formed a distinct section of the medical profession of the Country and Empire and each succeeding war during the past sixty years has emphasized the existence of that section of the profession to which during each war large and increasing additions were made from the general medical resources of the country.

During the period of those wars, including the post-war pre-demobilization period, those additions, which were very much stronger numerically than the original nucleus, became very much an integral part of that Service Section; the additional mass of professional skill, thought and energy helped very materially to build the Medical Services of the Armed Forces into that wonderful medical organization of the Second World War; while the individuals of that mass, very obviously in the majority of cases, became readily and fully absorbed into and even became controlling factors in the body and head of that organization.

During this period the professional aspects, the provision of personnel and the welfare of the individuals of the medical branches of the Services has been covered by the general activities of the B.M.A. But, nowadays, the International situation is producing a succession of crises necessitating almost permanent increases in the size of the Services element of the profession and the National situation producing a National Service with its considerable permanent though individually ever-changing succession of additions to that element. The National Health Service section of the medical community is catered for by special committees and publications of the B.M.A. and in the *B.M.J.*; but there is no special section or committee of the B.M.A. concerned specifically and entirely with the medical personnel of the Services and their medical publications are separate.

It is true that there is a United Services Section of the Royal Society of Medicine which is flourishing and vigorously promotes discussions and papers on Service professional subjects; there are also Service Liaison Officers of high rank and long experience attached to the B.M.A.; there even appear to be

Political Medical Associations which apparently, contrary to the non-political ethical aspect of the profession, pass and publish numerous impracticable, selfish and destructively critical resolutions to add more burdens to the already overloaded taxpayer; but these are, we think, not official sections of the B.M.A.

In this number of the Journal there is a description of the 100th Annual Session of the American Medical Association and the author of the article emphasizes the fact that there is a *Section* for Military Medicine which has been so extremely successful that it is being repeated again this year.

But in our Country there is no specific *Section* of the B.M.A. concerned entirely with the medical element of the Services.

With the continuance of the present emergencies and the continuing call-up of National Service doctors liaison between the Service medical organizations and the civilian is likely to become and certainly should be increased. This alone fully justifies the establishment of a *Services' Section* of the B.M.A. to enhance the morale of the National Service doctor and to show him that whilst in the Services he is still in fact part of the medical profession as a whole and that his interests are continually under review by his civilian colleagues.

In the Services postgraduate medical education, too, is of supreme importance both to the Regular members as well as to the Short and National Service Officers and can best be fostered by such a *Section* of the B.M.A.; while journals and other publications of medical members of the Services could receive assistance, advice and encouragement (as well as publicity) from such a section.

Research by the Armed Forces Medical Services could be assisted through a central B.M.A. *Services' section* to whom enquiries could be addressed and civilian liaison established. And finally medical members of the Armed Forces of Dominion, Commonwealth, Allied and other overseas nations would have a central bureau to which all enquiries could be addressed.

It would seem, therefore, that there is now a very real need for and we strongly recommend the formation of a *Services' Section* of the B.M.A.

[EDITOR'S NOTE.—Acknowledgment is hereby given to Colonel A. N. T. Meneces for some of the points included in this effusion.]

Travel and History

THE ONE-HUNDREDTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION

A NOTE BY

Lieut.-Colonel G. M. DENNING
Royal Army Medical Corps

TRAVELLING from Washington, D.C., by car in a N.E. direction some 180 miles your correspondent arrived at Atlantic City on the evening of June 10

to attend the 100th annual session of the American Medical Association.

On registering at Convention Hall the following morning one was given a very comprehensive programme, and a badge. From the number of badges seen during the next few days one wondered if the estimate of 13,000 doctors attending the meeting was not on the low side!

Apart from meetings of the House of Delegates and the various standing committees of the A.M.A. the session was designed, in the main, for the general practitioner and was divided into The Scientific Assembly; The Scientific Exhibit and the Technical Exposition.

THE SCIENTIFIC ASSEMBLY

This Assembly, of which there are 19 sections ranging alphabetically from anæsthesiology through military medicine to urology, met in the larger hotels of this seaside resort and papers were read and discussed. One of the outstanding rules which caused chairmen a certain amount of trouble is that papers shall not occupy more than fifteen minutes.

Military Medicine is a new section which was given a trial test last year at the annual meeting at San Francisco and was so well attended that it now has a permanent place in the Scientific Assembly. The first paper, on "the Changing Military Medical Picture in the U.S.A." was given by Dr. Richard C. Meiling, the Chairman of the Armed Forces Medical Policy Council of the Secretary of Defence, and was discussed by the three Surgeons-General of the Army, Air Force and Navy. Papers by Navy, Army, Air Force and civilian specialists followed ranging from communicable diseases of Africa and the Middle East through Air Evacuation, Man and the Submarine, to Progress in the Prevention and Treatment of Radiation Injury. Captain E. R. Herring, M.C., U.S.N., discussed the medical support of the Marine and Army units during the two weeks in which they fought their way out of the trap in the Chosen Reservoir Area of Korea, and members of the Cold Injury Team from the Osaka Army Hospital, Japan, discussed their experiences in treating some 2,000 frostbite injuries.

It is of interest that the attendance (912) at these sessions led the field beating Surgery and Internal Medicine.

THE SCIENTIFIC EXHIBITS

The nineteen sections of the Scientific Assembly had arranged over 300 exhibits dealing with the various specialities but emphasis was placed on the interest of the general practitioner. There were special exhibits on fractures, an exhibit symposium on overweight, arranged with the co-operation of the A.M.A., American Dietetic Association, Metropolitan Life Insurance Co., and the U.S. Public Health Service, a group of exhibits on noise in industry and demonstrations on fresh pathology specimens. All exhibits were of an extremely high standard and it must have been difficult to choose the best two for awards.

Here also the Armed Forces Medical Services were well represented, the Walter Reed Army Hospitals staging 4 exhibits, the Navy 2 and the Air Force and the Armed Forces Institute of Pathology one each.

As part of the Scientific Exhibit medical films were run continuously in two rooms throughout the week, Major Lewis and Colonel Kimbrough of the Walter Reed Army Hospital showing "Operative Procedure for Polycystic Disease Roving" and Hugh Smith of the Department of the Army showing "Intramedullary Fixation of the Femur." In many cases the authors were present to discuss their films.

In another room some 40 television screens presented, in colour, operations and demonstrations from the Atlantic City Hospital where special cases had been concentrated. The great future for this medium in the teaching world was amply demonstrated as procedures were seen more clearly than is possible when stretching the neck as a spectator in a theatre. It was estimated that over 1,000 viewers were present on occasions.

THE TECHNICAL EXPOSITION

This covered the Main Arena floor of the Convention Hall auditorium with over 355 firms showing thousands of Products. Various brands of soft drinks and cigarettes were given away daily and helped one to cover the ground without exhaustion. A lens hysteroscope for viewing and photographing the interior of the uterus and for doing biopsies, and the Land method of X-ray film processing whereby a dry positive print is available within one minute of exposure, were noteworthy.

THE 1950 EXPEDITION, BRITISH SCHOOLS EXPLORING SOCIETY

BY

Captain R. E. RICHARDSON
Royal Army Medical Corps (N.S.L.)

THE Public Schools Exploring Society was founded in 1932 by Surgeon Commander Murray-Levick, R.N., who was in Scott's last expedition. In 1947 the Society widened its scope and at the same time changed its name to the British Schools Exploring Society. Boys are selected after a personal interview and a recommendation from their headmaster. The choice is not influenced by financial considerations; and when necessary suitable candidates are subsidized. The individual cost of equipping and sending out each person on an expedition being in the region of £110; most people are to some extent subsidized, a heavy drain on the resources of the Society, which is an honorary one, registered with the Charity Commissioners, and dependent upon donations from many organizations and individuals.

The Society's object is to take each year a party of 60 to 70 boys with seven or eight leaders to some remote region abroad and there to train them in the fundamentals of exploration. Amongst the countries so far visited are Iceland, Finland, Canada and Norway. Now, because in an expedition the furtherance of knowledge is the main goal, and because the endurance of hardships and the conquest of geographical landmarks are only means to that end, the Society lays considerable importance on a training in Biology, Geology, Survey, etc. Thus a detailed scientific survey is made of a given area, a map is prepared, specimens of animal and plant life are collected for the British Museum, Geological and Glaciological surveys are made and many other records kept. The map is very often an improvement on existing ones, and the biological specimens are of great value. Nevertheless, the ability to live "hard" and to look after oneself under adverse conditions is an essential part of the equipment of anyone hoping to explore and there is plenty of scope for the development of "toughness" and initiative. To this end a series of "marches" are organized, some are seven and others are of fourteen days' duration. On these marches one carries all one's equipment, bedding, rations, etc. Sometimes, however, food is cached while on the march in order to lighten the load, a load which otherwise may amount to 80 lb., and which in mountainous country is a grim proposition. During these marches living is often very hard, cold and wet, and it is obviously training of the highest value. Even on the march, however, the scientific aspect is not forgotten and records of any points of interest are maintained.

THE 1950 EXPEDITION

The country selected for exploration in 1950 was Northern Norway. An area well within the Arctic Circle was chosen. It was wild and uninhabited country about 150 miles north of Bode, which was our port of disembarkation. The Base Camp was seven miles from the main Narvik Road, if such it could be called, for it was little more than a track, used by scarcely a dozen vehicles a day. The camp was admirably sited in glorious mountainous country beside one of the numerous Norwegian lakes and surrounded by plenty of wood for making fires and log cabins and other camp necessities. Seven miles westwards was the Narvik Road, while Eastward to the Swedish border lay wild uninhabited country. North and South the country was again wild except for an occasional Lapp settlement, until one met one of the large and beautiful fiords, which bite into the mainland, at times reducing the country to a few miles in depth and which have on their shore isolated fishing settlements.

The main party reached Base Camp, in these surroundings, at 2 o'clock on an August morning, when by the light of the midnight sun, it was still possible to see one's way into camp.

The first day was spent in the organization of the Base Camp and diverse were the activities. A large store tent was erected and a medical tent was put up, complete with equipment for an appendicectomy, if necessary. A reconnaissance was made to find a suitable site for the research party. The site had

to be near the area which they were to map and also as near to the Base Camp as possible, in order to minimize the portage of supplies. Eventually the site was chosen about 2,000 feet higher than the camp and approximately five to six miles away. The next few days were useful, preliminary training being spent "humping" food, equipment, and tents to the new camping ground. This entailed a hard climb with a pack of between 40-60 lb. However, one soon forgot the steep ascent on reaching the top, for a wonderful panorama of bleak, bare, rocky mountains arising from lakes with tree-clad shores far below was certain to catch the imagination of everyone. Here, too, were occasional reindeer wandering about on the high ground as they do in summer, until the winter snow drives them down to lower ground, where food is more plentiful and they have some protection against the weather. The journey to the survey camp was then completed by a downhill walk along a typical glacial valley.

As soon as the survey party had become established, "seven-day" marches were put out to study the biological and geographical features and also to make a reconnaissance for the "fourteen-day" march, or the "long march" which was to scale Bjorn toppen, a large glacier to the north of the Base Camp.

While these parties were out, those remaining in the Base Camp made a detailed survey of the area and generally improved living conditions in the camp. Small huts were put up, birch trees being used as a framework and roofed with branches, turf and leaves. The result was a surprisingly waterproof and useful hut, which enabled people to congregate in small groups, instead of resting in their tents. A bridge was also thrown across a rivulet which was to save much time, as otherwise all people and stores leaving the base had to be ferried across in a rubber dingy. In this way the first few weeks were spent, while preparations were made for the "long marches" and their routes discussed, as more and more information became available from returning parties.

At last two "long marches" were sent out, one to Bjorn toppen and the other to make a detour round some glaciers near the Swedish Border. Each party was to have a doctor, but owing to blisters which had developed on my feet, it was not possible for me to go, and the Bjorn toppen party was the only one to have a medical officer. A casualty in these regions would have been a serious proposition. To carry a stretcher for any distance in the rough country would have been impossible for a small party. The alternative would be to find a Lapp settlement and to send a party to the Base Camp, to arrange an evacuation, possibly by seaplane. However, both parties achieved their objective, without any such eventuality and in fact returned ahead of schedule, pleased to be back after an arduous ordeal, but equally pleased to have been picked men for what were the two most difficult marches.

The only party to see any sign of humanity was that which assailed Bjorn toppen, for they saw a few fishing huts on the shore of a fiord; the other party having gone inland in an easterly direction saw neither people nor signs of a Lapp settlement.

With these marches over, the evacuation of the camp was started. The equipment was taken by boat across two lakes. This was done in two stages, a temporary camp being made between the adjacent lakes, known as lakes Six and Seven. The first stage was made under difficult conditions, with very strong winds and rain. To make matters worse, the outboard motor attached to the boat decided that it had done enough and ceased to fire. No amount of coaxing could induce it to co-operate for the last few days of evacuation.

However, having carried the supplies round lake Seven, it was possible to row across lake Six, as this lake was several feet lower and was sheltered from the prevailing winds, which had caused much trouble on the first stage. After this had been accomplished it was a simple matter to move everything to a cart track a few hundred yards from the lake. Here, the equipment was loaded into a lorry and moved to the Narvik Road.

It was interesting to note from a medical viewpoint how fit people were throughout the whole expedition. There was a case of acute bronchitis, and that was the only serious illness we had. On arrival there were a large number of people who complained of stuffy noses and colds, but they were in all probability cases of allergic rhinitis as the condition was not associated with pyrexia, headache or sinusitis. The weather may have helped, as it rained remarkably little and we often had temperatures which reached 80° F. The lowest temperature reached was only 3° F. of frost, which contrasted with 15° F. frost as met by the previous expedition, slightly further south.

The Marching Rations consisted of:

Biscuits	...	...	12 oz.	Chocolate	...	...	2 oz.
Pemmican	(40	per		Oatmeal	...	...	2 oz.
cent fat)	...	...	2 oz.	Raisins	...	...	1 oz.
Cheese	...	...	4 oz.	Onions	...	...	2 oz.
Margarine	...	...	2 oz.	Carrots	...	...	2 oz.
Sugar	...	...	2 oz.	Salt	...	...	$\frac{1}{2}$ oz.
Dried peas or cereals			2 oz.	Tea	...	...	$\frac{1}{2}$ oz.

Ascorbic acid tablets

Total fats	...	...	...	142.0	grammes
Proteins	...	...	...	137.5	grammes
Carbohydrates	...	...	...	443.7	grammes
Total calories	...	...	...	3,638	

By using initiative it was possible to make considerable variations in the meals served. Many excellent stews could be made with Pemmican as a basis, and several cheese dishes were made combining the cheese with crushed biscuits and adding other ingredients. The cheese was then fried and some good rissoles were produced. Occasionally, too, there was an issue of base camp rations, which contained jam, dried milk, prunes, suet, corned beef and tea. This ration could be supplemented with any fish that were caught or any available fruit. We were fortunate in discovering near the Base Camp a large supply of bilberries, which made a very good "sweet" when stewed. They

were especially good when eaten cold, as this seemed to increase their flavour. It can be seen that these rations fulfilled the main requirements for such an expedition, which are that the food must be light of weight and small in bulk, of reasonable variety and as far as possible immune to the effects of water.

The rations were kept in a store tent and issued as required to the marchers leaving base camp, to the survey party and to those remaining in camp. The proper storage and issuing of rations was organized by a leader and two or three storemen. The whole system worked perfectly and at the end of the expedition only enough food remained for a final issue of base camp rations.

It was then as we partook of our final Base Camp rations, while discussing the past few weeks that we realized how much planning such an expedition necessitates. Already one or two leaders were turning their minds to the 1952 expedition, for by careful planning and anticipation the hazards of such an undertaking can be reduced. The necessity to think ahead was one of the lessons of the expedition, for if the old adage "look before you leap" is true of life it is doubly so of expeditions.

THE ROYAL VICTORIA HOSPITAL, NETLEY

BY

Colonel J. W. HYATT

THE Royal Victoria Hospital at Netley will soon be one hundred years old. The inscription on a brass plate surmounted by the Royal Arms is:

This Stone was laid on the 19th day of May in the year of our Lord 1856 by Her Most Gracious Majesty Victoria I Queen of Great Britain and Ireland as the foundation stone of the Victoria Military Hospital, intended for the reception of the Sick and invalided Soldiers of Her Army.

For the ceremony, the first public act of Her Majesty after the conclusion of peace the Queen arrived in the Royal Yacht, the route from the foreshore was lined by troops, and the Mayor of Southampton with all the local dignitaries attended.

The original water colour plan for this ceremony from the papers of General Sir A. Nelson was presented to the hospital by his grand-daughter Lady Burnett-Stuart in 1928. A drawing of the ceremony from the *Illustrated London News* has recently been presented by J. C. Crisp, Esq., of Bournemouth.

The hospital was expected to be the first of its class in Europe and to be completed in three years and accommodate 1,000 patients.

It was designed by Mr. Mennie, architect to the War Department, the cost was to be about £200,000. The site of originally 109 acres was purchased in August 1855 for £15,000.

The main hospital building presents a fine façade towards Southampton Water of red brick faced with Portland Stone and a granite base. The three blocks connected by corridors have a frontage of 468 yards with very extensive

glass windows. The Prime Minister of the time wrote: "It seems that at Netley all consideration of what would best tend to the comfort and recovery of the patient has been sacrificed to the vanity of the architect whose sole object has been to cut a dash when looked at from Southampton Water."

The proposal to build a military hospital originated in 1855 in order to remove the great inconvenience to the Service arising from the defects of the General Hospital at Fort Pitt as well as from the total inadequacy of the accommodation provided in the casemates at St. Mary's Chatham, for the reception of the invalids of the Army.

The Secretary of State for War Lord Panmure considered that it would be advantageous to the Service if a great military hospital were situated near either of the great ports of Plymouth or Portsmouth.

The Director-General of the Army Medical Department desired "that the hospital should be on the coast or on some large inlet of the sea so that invalids from abroad could be landed immediately and marched into their barracks and the sick without injury be placed in Hospital."

The members of the committee concerned in the plans of the hospital were Colonel O'Brien, A.Q.M.G., Horse Guards, Dr. Mapleton, M.D., and Captain R. M. Laffan, Deputy Inspector-General of Fortifications and a Medical Department committee of Dr. Andrew Smith, D.G., A.M.D., Dr. Cummings, Inspector-General of Hospitals, Dr. Dumbrick and Dr. Forrest, Deputy I.G. of Hospitals. Captain H. Elphinstone, R.E., was sent at the suggestion of Dr. Andrew Smith to inspect the hospital at Rotterdam recently built there and the Royal Victoria Hospital was modelled on the plan of that hospital.

Building proceeded but soon the physicians and surgeons of the Middlesex Hospital addressed a memorandum to Lord Panmure stating that "hospitals which have been recently constructed in this country on somewhat similar principles to the Royal Victoria Hospital have proved failures, and are continually subjected to visitations of erysipelas and hospital gangrene."

A committee called the Barrack and Hospital Improvement Committee raised further objections in the famous "Confidential Report." The chairman was Mr. Sidney Herbert and the members Dr. Sutherland, Dr. Burrell and Captain Galton, R.E. Evidence given by Miss Florence Nightingale to the commission on the sanitary condition of the Army is quoted in this report.

In April 1858 the original committee was ordered by Lord Peel to reassemble and report on these objections. After collecting further expert opinions they concluded that:

- (1) The site is unobjectionable.
- (2) The building well adapted to its purpose.
- (3) That it is not the sort of building for a medical school.
- (4) That considering the expenditure incurred we do not recommend that an otherwise good hospital be converted into a barrack.
- (5) That if a medical school is established it appears the best place would be at some large military station.

Dr. Sutherland presented a minority report.

These reports are very interesting reading and apparently the Army Medical Department in the original plans had some very ingenious ideas on ventilation, also the original purpose of the building was to have been an Invalid Depot and General Hospital combined.

A copy of these reports presented to the House of Commons by Command of Her Majesty in 1858 from the Officers' Library, Netley, is now in the Library of the R.A.M. College, Millbank.

According to the *Medical News* and the *Times* in the first week of March 1863, the staff of Fort Pitt Hospital, Chatham, moved to Netley with the professors of the Army Medical School. The invalid depot moved immediately afterwards from St. Mary's Barracks, Chatham.

Under the new system the troopships will lie in Southampton Water and all time-expired men will be landed immediately, only the sick and wounded will be detained in hospital.

The Governor of the hospital was Colonel R. Wilbraham, C.B., Major J. M. Kennedy, Paymaster, and Captain W. Hawtree, Captain of orderlies.

The sixth session of the Army medical school opened at Netley on April 15, 1863.

Professor Longmore, Deputy Inspector-General, addressed the Students on the objects of the school, which were to diminish mortality in the Army and to show to the Surgeons entering the Army the effects of Service on the soldiers, to which end the school was attached to the invaliding establishment. He mentioned that since the foundation of the school in 1860, 3 surgeons and 44 assistant surgeons and 89 candidates for commissions had passed through the courses, which equalled one-eighth of the total number of Army Medical Officers. Two young medical officers had recently died of cholera on service.

The Commandant, Dr. Anderson the P.M.O., Major Ravenhill, Commanding engineer, and Major Rawlings attended the lecture. Colonel Wilbraham hoped that the opening of the great establishment at Netley would be productive of two-fold benefits, that it would give the old soldiers a comfortable home until discharged, while for the medical staff he hoped that Netley would be what Woolwich was to the Artillery. He complimented the P.M.O. and the medical officers for their co-operation and accommodating spirit in which they had overcome all the difficulties of the first organization of so large an establishment.

The first visit of Her Majesty Queen Victoria was paid on May 8, 1863. The Queen landed about 3.30 p.m. with her staff and Sir James Clark, physician, and spent two hours in visiting almost every part of the hospital. Her Majesty must have been a frequent visitor afterwards but the records have vanished.

The first professor of Medicine at the Army Medical School was Surgeon-General W. M. Maclean, C.B., LL.D., Q.H.S., M.D. He was appointed from the Indian Service.

The first professor of Military Surgery was Sir Thomas Longmore, C.B., Dr. Aitken the first professor of Pathology had been sent out in 1855 to investi-

gate the diseases from which the troops suffered in the Crimea, and Dr. Edward Parkes was the first to fill the Chair of Hygiene.

The assistant professors also performed the executive duties as chiefs of the Divisions of the Royal Victoria Hospital.

Anyone who has read any of the books dealing with the life of Florence Nightingale will know how much the medical Department of the Army is indebted to Mr. Stanley Herbert. The warrant which goes by his name was known as its Magna Charta and the formation of the Medical School was largely due to his efforts.

The warrant conferred on medical officers the right to advise Officers in command on health questions and obliged them either to follow the advice or to submit their reasons for not doing so to their superiors in writing. From now onwards men of high professional ability and qualifications were attracted to the Service.

Surgeon-General Maclean, addressing the young medical officers on his retirement, mentioned that his publication of an account of an epidemic which he showed to have been preventable had incurred the displeasure of the then Secretary for War, since which none of the lectures of the professors had been published. He published "*Memories of a Long Life*" at the age of 84 in 1895.

Sir Thomas Longmore, C.B., Q.H.S., was professor of military surgery for nearly thirty-one years. As surgeon of the 19th Regiment he served throughout the Crimean Campaign. He wrote a Treatise on the Transport of Sick and wounded troops published as the official red book in 1869 and 1893. He was also responsible for the official manuals of sight testing and the distinguishing of visual defects in the Army. These were no doubt responsible for the foundation of the marksmanship attained in the Army in later years. His book "*Gunshot Injuries*" published in 1877, besides giving a description of all the missiles in use at that time, contains a full account of the Administrative arrangements for care and treatment of wounded soldiers in time of war.

In this book the only reference to Netley is the mention of the use of sawdust in gauze bags by Surgeon-Major Porter for the treatment of suppurating wounds. The sawdust used was obtained from steam saw-mills and is selected from the Menmel pine and appears to act as an antiseptic. No mention of sterilization is made. One wonders if the same timber merchant is now cutting the timber on the estate which must have just been planted at this time.

The professors' rooms and the library were on the second floor of the Centre Block, the lecture theatre was opposite the operating theatre on the same floor of A Block. The laboratories were in B Square now occupied by the Barrack Stores. Two well-known names in Pathology are associated with Netley.

Sir Almroth Wright returned to England in 1891 from Sydney where he had been demonstrator of physiology. He became Professor of Pathology at Netley and held the post for ten years. In 1895 he began his researches

in the prevention of disease by inoculation. He went from Netley in 1898 to serve with the Plague Commission in India. His struggle with the authorities in order to introduce inoculation against typhoid fever in the army caused him to resign and go to St. Mary's Hospital, London.

Sir William Leishman passed fifth into the Army Medical Service in 1887. Ten years later he was posted to Netley to take over charge of the Medical Ward. While working in the Pathological Laboratory he evolved the stain that bears his name which enabled the causative parasite of kala-azar to be demonstrated.

He became Professor of Pathology on transfer of the school to Millbank in 1903 and Director-General of the Army Medical Services in 1923.

During the recent painting of the hospital the names of the medical officers who obtained first place in the competitive examination for commissions from the seventeenth to the thirtieth session 1868 to 1875 were revealed painted on the present wall of the lift shaft outside the former college lecture theatre.

A description of Netley in 1887 is given in the R.A.M.C. JOURNAL by Colonel E. C. Fremantle, C.M.G. The hospital then took all invalids except Gunners and Royal Engineers. The Officers' Mess was very lively, the Medical Service had the prettiest patrol jacket of the Army, greatcoats had velvet collars and the Mess kit was blue and black velvet with red waistcoat buttoning up to the neck. There was then plenty of social life, the annual cricket match against Haslar was a great event. The principal object in the museum was the skeleton of the Duke of Wellington's charger "Copenhagen" which performed many nocturnal journeys with the surgeons on probation.

Originally all Army nurses served a probationary period at Netley until 1884 when previous civilian training was required. The first detachment of other ranks of the Queen Alexandra's Army Nursing Corps joined the hospital on January 12, 1951.

In the report of the hospital for 1863, Inspector-General Anderson reports that the invalids have been comfortably landed from the steamers in which they were brought round from Spithead in the large boats of H.M.S. "Dauntless" and disembarked at the Queen's stairs. The pier was constructed in 1865 and later a railway line to the hospital enabled ambulance coaches to be used.

The mental hospital "D" Block was built in 1870, a large ward was added to the front of the building in 1907.

During the 1914-1918 war the hospital was expanded to 2,500 beds with the addition of sections maintained by the British Red Cross and by voluntary subscriptions in Wales. These hospitals were in huts and tents behind the main building.

In the 1939-1945 war the accommodation at Netley was handed over to the American Forces on January 15, 1944, and reoccupied on July 19, 1945. Netley Hospital during this period moved to Leighton House, Victoria College, Westbury, Wiltshire.

In September 1940 a hall constructed entirely of timber was presented by the Timber Trades Federation of the U.K. to replace the Y.M.C.A. hut erected in 1915.

"E" Block built in 1941 now accommodates all the hospital beds, and in 1949 a gymnasium was added for the convalescent wing.

In 1889 the Families Hospital consisted of two wards 24 feet by 18 feet on elevated ground. In recent times it was situated at the east end of the main building opening on a garden. Closed in 1944 it reopened in 1947 and was closed again eighteen months later owing to the difficulty of providing nursing staff.

The great interest that Her Majesty Queen Victoria took in her troops is indicated by the following letter to the P.M.O.

Dear Surgeon General Nash,

Osborne, February 11, 1895.

The Queen commands me to say that she wishes to present to all the patients at Netley today who have had the misfortune to lose their legs and arms an artificial limb with all the latest improvements. Perhaps you would kindly arrange accordingly and in due course send the account to me. I am only writing privately but you may be glad to hear that the Queen was much pleased with her visit today and with all the excellent arrangements. Believe me, Yours very truly,

Fleetwood J. Edwards.

The shawl crocheted by the Queen and presented to the hospital in 1882 for the use of her most deserving soldier is the most treasured relic existing at Netley.

There are many memorials at Netley, the earliest being that of the Crimean War. It is in the form of a thirteenth century cross of Portland Stone 56 feet high, situated at the centre of the water front and next to the cricket pavilion. The foundation was laid by the Prince of Wales in 1864.

In the main entrance hall is a marble bas relief in memory of the officers, N.C.O.s and men of the Army Medical Department who fell in the discharge of duty during the Campaigns of 1878 to 1880 in Afghanistan and of 1879 in South Africa.

In the Royal Chapel situated behind the centre block and clock tower, which with the galleries can seat 900, there is a stained glass window dedicated to Surgeon General C. Stewart Beatson, C.B., M.D., P.M.O., in 1890. The altar is in memory of Lieutenant-General Sir Charles Burtchael, D.M.S., in France and Director of Medical Services in India 1919-1923 and the altar rails commemorate Major W. Mc. E. Snodgrass, M.C., who died from infection contracted while operating at Netley 1934. There are numerous mural tablets. The chapel is well described in the pamphlet, Netley 1856 to 1935, by the Revd. E. H. Pillifant.

Between the two wars the patients' library at the west end of the main building was taken over as the Roman Catholic Church.

Since 1948 part of the ground floor of the main building has been appropriated as the Serjeants' Mess, an improvement on the dingy quarters in "B" Square.

At the present time the hospital consists of Medical and Surgical Divisions and Psychiatric Division with Psychotic and Psychoneurotic wings. A Convalescent Wing of 500 beds in the main building brings the total number of equipped beds to 932.

In addition the Army School of Physiotherapy and the Embarkation Medical Equipment Depot are located here.

It is regretted that there are many gaps in the history of the hospital as few records exist.

However, Netley has I trust lived down the remarks quoted in the beginning.

I am indebted to Major General T. Menzies, D.D.M.S. Southern Command, for permission to publish this article and to the Librarian of the R.A.M. College, Millbank, for help in the search for references.

Clinical and Other Notes

OBSERVATIONS MADE DURING THE DENTAL TREATMENT OF PATIENTS SUFFERING FROM PULMONARY TUBERCULOSIS

BY

Lieutenant E. K. JOSEPH, L.D.S.

Royal Army Medical Corps

THE following observations were made over a period of five months at the Connaught Military Hospital, Hindhead. The recent methods of treatment of pulmonary tuberculosis by Streptomycin and para-Aminosalicylic Acid (PAS) over long periods offered the possibility of observing the effects of these drugs, if any, on common dental conditions. The number of patients suffering from this disease and under this new treatment who were examined exceeded 100.

OBSERVATIONS

Acute Alveolar Abscess

As it is undesirable to subject patients with pulmonary tuberculosis to general anæsthesia, it was possible to observe the course of acute abscesses unsuitable for treatment by immediate extraction of the offending tooth under local anæsthetic, until the acute signs and symptoms had subsided.

Several patients, who were being treated with streptomycin, developed

acute alveolar abscesses during the period of observation. These abscesses were typical in appearance and duration of their phases.

Streptomycin did not seem to affect the condition.

Chronic Periapical Abscess

Radiographic examination carried out during routine dental treatment revealed several cases of rarefaction of bone at the apices of grossly carious teeth, typical in appearance of chronic periapical abscess. The course of these was observed in patients undergoing streptomycin and PAS therapy. No unusual changes were seen.

Two cases of chronic inflammatory swellings of dental origin lying in the buccal sulcus were observed. The following notes taken from one of the case histories demonstrates the apparent inability of streptomycin and PAS to alter the course of such a condition.

8.3.51. A patient attended complaining of swelling and pain in $\overline{67}$ region. There was a history of pain and swelling for approximately six months, during the course of which little or no change in the size of the swelling, but variations in the degree of pain, were noticed. (For a period of two months previous to the above date the patient, during the normal course of treatment for pulmonary tuberculosis, was given streptomycin 1 gramme per day and PAS 15 grammes per day.)

On Examination.—A large swelling lay in the buccal sulcus opposite the $\overline{67}$ in continuity with the alveolus. $\overline{7}$ grossly carious, $\overline{6}$ carious.

Radiographs showed a large area of rarefaction of bone around $\overline{6}$ extending distally to the apices of the $\overline{7}$ and inferiorly to the inferior dental canal.

The condition resolved after extraction of the $\overline{67}$.

Gingivitis and Generalized Periodontitis

There has been an absence of the above-mentioned diseases during the period of observation. No patients have attended with gingivitis of the acute or chronic types. Some marginal gingivitis, associated with calculus deposition, has, however, been observed, and this disappeared after scaling and polishing had been carried out.

Staining of the Teeth Following Administration of PAS

During the course of routine dental treatment it was noticed that several of the patients had rather yellow teeth, and particularly the silicate fillings in those teeth. It appeared that this was coincident with the oral administration of PAS. Further observation showed that in some cases there was staining of dentures, of hypoplastic lines in the enamel of natural teeth, and most patients complained of "a sort of film over the teeth as if they had not been cleaned."

Tuberculosis Ulcers of the Oral Mucosa

No cases of tuberculous ulcers in the mouth were seen.

DISCUSSION

Organisms which have been identified in bacteriological examination of acute alveolar abscesses include streptococci of hæmolytic, viridans and indifferent types, *Staphylococcus albus*, *Staphylococcus aureus*, *Staphylococcus citreus*, *Micrococcus tetragenus* and bacilli of the mesentericus, proteus and coliform groups. Those identified from chronic abscesses include, as well as the above-mentioned organisms, *Streptococcus pneumoniae*, *Bacillus typhosus*,¹ Diphtheroids and *Hæmophilus influenzae*.

It might be expected that, as many of the above organisms are streptomycin sensitive, the antibiotic would have some effect on these conditions. This has not been the case so far.

It is known, however, that some acute alveolar abscesses develop as an exacerbation of a chronic peri-apical infection. With respect to this, it must be stated that the effect of most drugs used in the treatment of chronic infections associated with the formation of granulation and fibrous tissue is very slow acting. For example, streptomycin therapy takes months to affect the course of chronic tuberculosis. Thus the period of observation has been insufficient to draw any definite conclusions regarding its effect on chronic inflammatory conditions of dental origin.

CONCLUSIONS

The doses of streptomycin and PAS given for treatment of pulmonary tuberculosis do not seem to affect the course of common dental conditions. PAS does, however, stain the teeth.

I wish to thank the Commanding Officer of the Connaught Military Hospital, Hindhead, for his permission to publish the above article.

**A MEMORIAL TO
MAJOR-GENERAL SIR DAVID BRUCE, K.C.B., F.R.S.**

Introducing the David Bruce Laboratories

BY

Brigadier A. SACHS, M.D., M.Sc.

Director of Pathology

ARMY Council Instruction No. 63 of January 27, 1951, directs that the Army Vaccine Laboratory be renamed the David Bruce Laboratories.

Behind this somewhat bald statement lies the story of the evolution of one of the most important units in the Army Medical Service, and its association with one of the Corps' greatest pathologists.

¹*Bacterium typhosum* or *Salmonella typhi* are the modern names.

No more appropriate name for such an establishment could be found than that of David Bruce, who, in association with Sir Almroth Wright and Sir William Leishman, did so much to develop immunology in the Medical Services and to lay the foundations of a department which dealt exclusively with this problem.

David Bruce joined the Corps in 1883. It was during his first foreign tour from 1884 to 1889 in Malta that he carried out his research work which led to the recognition of the *Micrococcus* (now, in his honour, named *Brucella melitensis* as the causative organism of Malta fever (*Practitioner* (1887), 39, 161). During the same tour, he also conducted an enquiry into an outbreak of cholera.

On his return to England in 1889, he was appointed Assistant Professor of Pathology at Netley, an appointment which he held for five years. During this period he was associated with Sir William Aitken, who had been appointed the first Professor of Pathology in 1860, and Almroth Wright, who succeeded Sir William in 1892.

While at Netley, Bruce continued his work on the bacteriology of Malta fever, and, having studied bacteriology under Koch in Berlin, instituted the first systematic course in the subject to be given in any British medical school.

Haffkine visited the Army Medical School at Netley in 1892 to demonstrate his method of inoculation against cholera by the injection of live cultures of the causative vibrio. This method of preparing the vaccine was later demonstrated to the class, and it is possible that it played an important part in suggesting to Wright and his co-workers the practical possibilities of anti-typhoid immunization.

During his next foreign tour, in South Africa from 1894 to 1901, Bruce began his work on trypanosomiasis, and took part in the defence of Ladysmith. He also served on a commission which investigated outbreaks of dysentery and enteric fever during the South African War, the report of which was presented to Parliament in 1902.

From 1904 to 1906, Bruce was chairman of the Royal Society's Commission on Malta fever which demonstrated the mode of transmission of the disease, and thus completed the cycle of his own work. Previously, Wright at Netley had developed a serum-agglutination reaction which led the Royal Navy to adopt "Mediterranean fever" as an official diagnosis in 1897.

Bruce's work in Africa on trypanosomiasis is internationally famous, and in 1912 he was promoted Surgeon-General for his scientific services. Shortly after his arrival in South Africa in 1894 he was instructed to proceed to Zululand at the request of the Governor of Natal to investigate an outbreak of nagana (trypanosomiasis of cattle). Bruce was accompanied by his wife, who was his able and energetic assistant throughout his researches, and proved that nagana and tsetse fly disease were identical and due to a trypanosome. This was the first occasion in which insect transmission of a pathogenic protozoon had been proved. Further work was interrupted by the South African War.

In 1903 he went to Uganda as a member of the Sleeping Sickness Commission where, with Aldo Castellani, he demonstrated the pathogenicity of *Trypanosoma gambiense*, its transmission by *G. palpalis*, and the importance of game as a reservoir.

In 1908 he became Chairman of the Sleeping Sickness Commission and in that capacity worked in Uganda from 1908–1910 and in Nyasaland from 1911–1914, investigating the connexion between the parasites, vectors and diseases affecting game, animals, stock and man.

Less well known is his work during the first World War, when, as Commandant of the Royal Army Medical College (1914 to 1919), he also served on the committees for the study of tetanus and trench fever. It was largely due to the work of these committees that the efficacy of the prophylactic injection of anti-tetanus serum in the prevention of tetanus was demonstrated.

During 1898, a trial of an anti-typhoid vaccine produced in the Army Medical School, Netley, was carried out on volunteers in the British Army in India, and in the following year, no less than 30,000 men were inoculated against typhoid. In the year 1902, the Army Medical School moved from Netley to London, and vaccine production continued in the Royal Army Medical College at Millbank until the outbreak of war in 1939.

Immediately after the declaration of war in September 1939 the Vaccine Department of the Royal Army Medical College moved from Millbank to Tidworth, where it was known as the Emergency Vaccine Laboratory. In July 1942 it was transferred to the Manor House, East Everleigh, and joined up with the subsidiary or serum laboratory which had moved there some months previously. After the end of the war, it was recognized that the functions of the unit had expanded considerably, and in 1946 the name was consequently changed to the Army Vaccine Laboratory. At present, in addition to its principal function of supplying the Army's requirements of vaccine and allied diagnostic products, it acts as a reference laboratory for organisms of the *Salmonella* and *Shigella* groups, carrying out research work on related problems, and also has a Blood Transfusion Department which fills the role of the wartime Army Blood Supply Depot, Bristol.

General Bruce retired on May 1, 1919, and died on November 27, 1931. His imposing and commanding figure, his somewhat brusque and incisive manner and his brilliant record will long be remembered by officers of the R.A.M.C.

The work of Bruce was of world-wide interest and of lasting value in bacteriological research, and included work on organisms which are the special concern of the Everleigh establishment: his application of this work to the health of the soldier in peace and war must be an inspiration to all Army pathologists. What finer reasons can be found for honouring David Bruce by associating his name with the laboratories which are the lineal descendant of those at Netley in which he worked and those of the College which he subsequently commanded?

March 1951.

[Obituary. *Lancet*, December 5, 1931, p. 1270.]

NOTES FROM AMERICA

A "Ground Breaking" Ceremony

BY

Lieut.-Colonel G. M. DENNING, M.L.O.

Royal Army Medical Corps

ALTHOUGH during the past half-century five different attempts have been made to obtain the necessary funds to construct new accommodation for the Armed Forces Institute of Pathology it is, at the present time, occupying a structure in Washington built in 1887.

On July 10, 1951, your correspondent attended *the ground breaking ceremonies* for a new building at the Army Medical Center, Washington, D.C. This new building, which it is hoped will be completed in two years at a cost of £2,600,000, will have several interesting features. The exterior walls will be of reinforced concrete 12 inches thick, and three of the eight floors will be underground. Except for the office section it will be entirely without windows, and special high intensity lighting will be installed. It will, of course, be air conditioned. Plans also include central closed-circuit television facilities, which are to be used in teaching both Army and civilian students.

The Institute, which, before unification of the military establishment, had been known as the Army Medical Museum (founded in 1862), and later, the Army Institute of Pathology, consists of four departments. The Pathology Laboratories provide consultative and diagnostic services on specimens submitted by military and other federal hospitals, medical schools, civilian hospitals and medical institutes all over the world. The American Registry of Pathology, operating under the auspices of the National Research Council, conducts investigations in specific fields of Pathology. The Medical Illustration Services prepares medical exhibits and material for use in training, whilst the Museum collects and preserves material, instruments and other items of historic medical importance.

Directed by Brigadier General Elbert De Coursey, M.C., U.S. Army, and under the administration of the Army Surgeon General the Armed Forces Institute of Pathology has an Army-Navy-Air Force Staff.

Correspondence

ROYAL ARMY MEDICAL COLLEGE,
MILLBANK,
LONDON, S.W.1.

August 21, 1951.

DEAR SIR,

I am most interested in the letter from Lt.-Col. J. T. Robinson concerning Part I of my article titled "The Promotion and Maintenance of Mental Health in the Military Community" (My article—Vol. XCVI, pp. 17–40. His letter—Vol. XCVII, pp. 60–61.)

I anticipated that this article would not be accepted without criticism by some Specialists in Psychiatry, although those who were kind enough to read it through before publication assured me that most of it was sound enough.

The sting of Lt.-Col. Robinson's letter is, as with the scorpion, in the tail: he chides me with the reproof, "Generalizations unfounded in substance and experimental evidence only confuse and impede knowledge." However, I think Lt.-Col. Robinson may well be hoist with his own petard, because some of the points of criticism he has made are themselves "generalizations unfounded in substance and experimental evidence."

(1) He says that there is no significant correlation between illiteracy and low intelligence. But there *must* be such a correlation; in fact, Lt.-Col. Robinson suggests the correlation himself when he points out that intelligence depends upon an innate capacity to learn.

In denying this correlation he is denying the fact that those who do not possess an innate capacity to learn are likely to be illiterate.

No one can dispute the fact that literacy depends on education: but that it also depends upon intelligence should be obvious to all. And as for experimental evidence, I refer Lt.-Col. Robinson to the studies which Hildreth carried out at Lincoln School (Hildreth, G., 1940. Adopted Children in a Private School. Thirty-ninth Year Book of the National Society for the Study of Education, Part II).

With regard to the point "illiterates *per se* are never referred to psychiatrists": I have been informed by an Army Specialist in Psychiatry that illiterates are so referred.

(2) Lt.-Col. Robinson says "potential healthy carriers of pathological organisms have no correlation with low intelligence."

In my article I said that men of low intelligence *may* be chronic or "healthy" carriers of pathological organisms.

There is considerable evidence supporting this correlation. First, outbreaks of infectious gastro-intestinal disease are well known to be commoner in institutions for the mentally defective than elsewhere. Secondly, Rees has pointed out that men of low intelligence in the Army have shown an incidence of scabies higher than the rest of the community; this is due to poor health discipline plus low morale, a state of affairs predisposing to infection with other biological agents of disease as well as *Sarcoptes scabiei*.

Lastly, my own observations during three years in Aldershot District lead me to believe that men of low intelligence were apt to have a low standard of personal health discipline and, for this reason, were liable to contract and disseminate "excremental" diseases.

(3) He says that those with an intelligence ratio of SG5 and SSG3 can safely be employed in Messes, kitchens, etc., and that by limiting their numbers, etc., their health discipline can be made quite satisfactory.

Men of low intelligence are, in general, a menace in any place where food is prepared and handled; it is impossible to teach them the hygiene of food-handling up to the same standards as normal individuals because their innate capacity to learn is low.

(4) With regard to improving the Law to protect society against psychopathic personalities:

In my article I merely suggest that there is scope for improving the Law in this connexion; not having any legal training I cannot do more than make this suggestion. However, the facts remain that these psychopathic personalities are a danger to society, that tragic crimes of violence continue to be perpetrated and that psychopaths are subject to very little (if any) legal restraint.

(5) I agree that men should not evade Service because they have a bad "civilian record." I must stress, however, that habitual bad characters are often consumers of military man-power instead of contributors and that, therefore, the Army is often better off without them.

(6) I also agree that many personnel deliberately show their dissatisfaction with the Service by misconduct. In my article I said "these men are of no value to the Army and should be disposed of with the *help* of the nearest Army Psychiatrist."

I did *not* say that they should be discharged medically; Lt.-Col. Robinson will, I am sure, agree that the psychiatrist is a *help* in getting rid of these men.

(7) The nine unstable personality types I described in my article need not be *gross* as Lt.-Col. Robinson states so categorically.

I merely say that certain traits may be exaggerated yet not pathological, and proceed to describe the traits by which these various types may be recognized. In this section of my article I devoted a whole page to saying how *slight* (as opposed to *gross*) these traits might be.

I agree with Lt.-Col. Robinson that these personality types are rare in their

gross forms; no doubt he will agree with me that they are common in their *mild* forms.

(8) With regard to the case of obsessional neurosis. The border-line between the mere "obsessional trait" and actual neurosis must be determined largely by opinion. In any case, I did not say, or even hint, that obsessional neurosis was common: neither did I say that obsessional traits were uncommon.

In conclusion I should like to thank Lt.-Col. Robinson for his stimulating letter. Psychiatrists and hygienists must co-operate in the promotion and maintenance of mental health, and in order to do this, they must embark on voyages of discovery into each other's Specialist fields: it was with such an idea in mind that I wrote the article under reference.

Yours sincerely,

MARTIN LEWIS,

Major, R.A.M.C.,

Demonstrator in Army Health.

[EDITOR'S NOTE.—Further critical correspondence on this or any other subject will be very welcome and will be given a place in the relative issue of this journal.]

Matters of Interest

BIRTHDAY GREETINGS

THE following message of greeting was sent to Her Majesty on the morning of August 4.

THE PRIVATE SECRETARY TO HER MAJESTY THE QUEEN,
BUCKINGHAM PALACE

Colonels Commandant and All Ranks Royal Army Medical Corps submit their most respectful greetings to their Colonel-in-Chief on her birthday.

From Director-General, Army Medical Services.

BUCKINGHAM PALACE

9.30 a.m. Saturday, 4th August, 1951.

To Director-General, Army Medical Services

I send my sincere thanks to all ranks of the Royal Army Medical Corps for their loyal message of greetings which I have received with great pleasure.

ELIZABETH R., *Colonel-in-Chief.*

THE CORPS WEEK

THE following is the amended programme of Corps Week 1952. The D.G.A.M.S. has requested that it should be given publicity.

Thursday,	June 19	Corps Sports.
Friday,	June 20	Officers' "At Home" and Annual Dinner.
Saturday,	June 21	Corps Golfing Society Meeting.
Sunday,	June 22	
Monday,	June 23	Corps Day.
Tuesday,	June 24	Cricket and Swimming at Aldershot.
Wednesday,	June 25	Cricket and Officers' Ball at Aldershot.

EXAMINATION RESULTS

OFFICERS on the attached list, from the Royal Army Medical College, were successful in the July examination for the Diploma in Tropical Medicine and Hygiene of the Conjoint Board.

This was a 100 per cent pass of the candidates from the College, and in fact for the whole R.A.M.C. entry.

Major T. E. Field, R.A.M.C.
 Major C. E. Stuart, R.A.M.C.
 Major J. A. H. Brown, R.A.M.C.
 Major R. Balakrishnan, Burma Army
 Major Maung Lwin, Burma Army
 Major E. J. Bowner, R.A.M.C., of The David Bruce Laboratories, Everleigh.
 also passed

TERRITORIAL ARMY

Royal Army Medical Corps.

Colonel The Lord Webb-Johnson, *K.C.V.O., C.B.E., D.S.O., T.D., F.R.C.S.* (24299) relinquishes the appointment of Hon. Col. of a T.A. Unit, September 3, 1951. (*London Gazette* Supplement September 4, 1951.)

NOTES FROM A.M.D.

BY OUR SPECIAL CORRESPONDENT

THE admiration we expressed last month for those who are successful in examinations has prompted a colleague to draw our attention to the fact that six candidates (four R.A.M.C. officers and two Burmese Army officers), of whom five were pathologists, sat the examination in July 1951 for the D.T.M.&H. All were successful.

The *London Gazette* of July 24, 1951, announces some changes of Colonels Commandant, the Royal Army Medical Corps. Major-General K. A. M.

Tomory is appointed Colonel Commandant in place of Lieut.-General Sir William MacArthur who has resigned his appointment. Major-General J. M. Macfie is appointed Colonel Commandant in the vacancy created by the expiry of tenure of office of Major-General R. E. Barnsley. It is also announced that Lieut.-Colonel D. R. Cattanach has retired on account of disability. For the same reason Lieut.-Colonel H. D. F. Brand retired at the beginning of July 1951 with the honorary rank of Colonel. Colonel T. B. H. Tabuteau, having reached the age limit for retirement, is retained on the Active List supernumerary to establishment.

Since we made our incautious remarks about those who make red ticks in the Army List against the names of officers who are promoted or retire, one or two individuals have shed their anonymity and pointed out (rather brusquely, we thought) that they were doing it entirely for the benefit of others who might refer to the List. Having been taken so severely to task, we hastily drop our patronizing air and offer to all officers who work so selflessly in the service of their fellow-men the latest information we have received.

Lieut.-Colonel J. M. Ryan to be Colonel and Major E. W. O. Skinner to be Lieut.-Colonel, both with effect from August 14, 1951. In addition a number of officers holding Short Service commissions have been granted Regular Army commissions, retaining their present seniority. They are: Major A. O. McClay (June 25, 1951); Captains F. L. Holroyd and A. F. Young (June 30, 1951); Captain J. E. Noble (July 10, 1951); Captain I. M. Grant (July 24, 1951); Captain R. P. Bradshaw (July 25, 1951); and Lieutenant L. Tippet (August 3, 1951).

We now come to the third instalment of our serial travelogue in which we give our readers the appointments of senior officers of the Corps throughout the world. This month we have selected the Middle East, and we logically start with G.H.Q. Middle East Land Forces. Here the D.M.S. is Major-General A. J. Beveridge and the A.D.M.S. is Colonel J. A. D. Johnston. Lieut.-Colonel J. Shields is D.A.D.M.S., Colonel A. N. B. Odbert is A.D.A.H. and Colonel W. R. C. Spicer is Consultant Physician. Also in Egypt is Brigadier G. E. MacAlevey, who is D.D.M.S., H.Q., B.T.E., Lieut.-Colonel J. S. Kelleher, his A.D.M.S., and Lieut.-Colonel D. G. Levis, his A.D.A.H. Commanding the British Military Hospital, Fayid, is Colonel W. J. Officer. The officers i/c medical and surgical divisions are respectively Lieut.-Colonel W. A. McD. Scott and Lieut.-Colonel A. G. D. Whyte. Lieut.-Colonel A. C. Cox is the Otologist, Lieut.-Colonel E. A. Smyth is Surgical Specialist, Lieut.-Colonel W. G. Greene is the Dermatologist, Lieut.-Colonel H. E. D. Flack is the Psychiatrist, Lieut.-Colonel K. H. Harper is the Radiologist and Lieut.-Colonel F. MacD. Byrn is the Anæsthetist. At Moascar is the Military Families Hospital, commanded by Lieut.-Colonel J. C. Reed. The British Military Hospital at Tel-el-Kebir is commanded by Lieut.-Colonel G. A. E. Harman. Lieut.-Colonel R. S. Hunt is Surgical Specialist on the establishment of the Pool of Specialists, Middle East Land Forces. The Officer Commanding the Central Medical Laboratory is Colonel G. T. L. Archer, who is also D.D.P., and Lieut.-Colonel R. S. Vine is the Specialist Pathologist.

Along the North African coast is H.Q. Cyrenaica District, where Lieut.-Colonel J. J. Sullivan is A.D.M.S. Lieut.-Colonel A. T. Marrable commands the British Military Hospital, Tripoli.

In the Sudan, Lieut.-Colonel H. K. A. Nash is A.D.M.S., and at H.Q. Cyprus District the A.D.M.S. is Lieut.-Colonel P. Coleman, with Lieut.-Colonel A. F. H. Keatinge as D.A.D.A.H. At the British Military Hospital in Cyprus is Lieut.-Colonel A. B. Dempsey.

Before we go down to East Africa we are obliged to become secretive again and say that somewhere in the Middle East Colonel W. A. Robinson is A.D.M.S. of an infantry division and Colonels J. N. Atkinson and D. P. F. Mulvany are A.D.S.M.S. of Brigade districts. Lieut.-Colonels J. E. Miller, W. Windsor and H. V. D. A. Iles command certain field units. Lieut.-Colonel A. D. Young is in command of a parachute field ambulance, and readers may consult their daily newspapers for the location of this unit.

The D.D.M.S. East Africa Command is Brigadier W. L. Spencer-Cox and the A.D.A.H. is Lieut.-Colonel J. L. Gordon. Lieut.-Colonel R. H. Hunt is O.C. British Military Hospital, MacKinnon Road, and Lieut.-Colonel P. O'Shea is O.C. British Military Hospital, Nairobi. Lieut.-Colonels R. M. Johnstone and C. S. Gross are Advisers in Medicine and Surgery respectively, and this proves our assumption wrong in saying last month that we thought the similar appointments in B.T.A. were unique.

The D.D.M.S. Malta Garrison is Colonel T. B. H. Tabuteau.

On July 24, 1951, there retired from the Army Major-General J. J. Magner, C.B., M.C., who until the date of his retirement was Deputy Director of Medical Services, Northern Command.

Commissioned in 1914, he served during the first World War in France and Salonika. From May until October 1919 he was in Russia, and from 1920 to 1923 he was in the Army of the Black Sea. For the next three years he was seconded to the Sudan Defence Force. After a period in the United Kingdom, during which he served in the Cambridge Military Hospital and on the staff of the Depot, he was posted in 1929 to India, where he stayed until 1934. He was a specialist anaesthetist and specialist dermatologist at the British Military Hospital, Quetta.

He returned to England to be appointed Registrar of Queen Alexandra Military Hospital, Millbank, in the following year. He went to Malta in March 1928 and was appointed Chief Instructor at No. 11 Depot at the beginning of the Second World War. Two months later he became Commandant of No. 11 Depot. He had previously been promoted Brevet Lieut.-Colonel on January 1, 1938, and Lieut.-Colonel May 1, 1938. From June 1941 he served in the United Kingdom, PAIFORCE and M.E.F. as A.D.M.S. 56 Division. In February 1944 he became D.D.M.S., G.H.Q., M.E.F., and three months later was promoted Colonel, with the acting rank of Brigadier. At the end of the war he went to Northern Ireland District as D.D.M.S., and assumed a similar appointment in Scottish Command in 1947 with the acting rank of Major-

General. In 1948 he went to Northern Command and was promoted Major-General in the same year.

He attended the Senior Officers Course in 1926 and received the D.M.R. from London University in 1936. He was awarded the Military Cross in 1920 and was admitted to the Order of the Bath in 1948. He was three times mentioned in dispatches: in France in the 1914-18 war, PAIFORCE 1943 and Italy 1945.

Brigadier O. C. Link retired on August 21, 1951, when he was Deputy Director of Medical Services, Scottish Command. He was commissioned thirty-seven years ago and served in the Middle East, Gallipoli, Egypt and France in the 1914-18 war. This was followed by five years in various hospitals in India, whence he returned to attend the Senior Officers Course in 1926. He was subsequently classified as a specialist in midwifery and gynaecology. He then returned to India to serve in his specialist capacity until 1933. Following this he was appointed O.C. Military Families Hospital, Colchester, and held this appointment for three years. In March 1937 he went to Malaya where he was O.C. Military Hospital Tanglin and 32 Company, R.A.M.C. On his return to the United Kingdom three years later he was appointed to command 22 C.C.S. and later, 38 General Hospital. During this period he served in Iraq and India. He was promoted Lieut.-Colonel in April 1938 and held the acting rank of Colonel with 38 General Hospital. He became A.D.M.S. of a L-of-C. Area in India in 1944 and two months later was promoted Colonel. Not long after the end of the war he returned to the United Kingdom and assumed the appointment of A.D.M.S. South Wales District and a year later, A.D.M.S. Mid-West District. After only two years at home he again served overseas for three years, this time in the Middle East, where he was at Headquarters in Palestine and Egypt. He assumed his last appointment in Scottish Command in September 1950.

ROYAL ARMY MEDICAL CORPS CHARITIES AND ORGANIZATIONS

OFFICERS' FUNDS RULES

Approved by Annual General Meeting June 1951

THESE rules are based on the organization approved by the Extraordinary General Meeting held on the R.A.M. College, Millbank, on December 16, 1950, and should be read in conjunction with the Handbook of the "R.A.M.C. Charities and Organizations."

The rules were approved by the Annual General Meeting of Subscribers held on June 8, 1951.

All previous rules are hereby cancelled.

SECTION I.—GENERAL CONTROL AND ADMINISTRATION

1. The Director-General, Army Medical Services, is President (*ex-officio*) of all R.A.M.C. Charities and Organizations.

2. He is assisted in exercising general control and administration by the Council of Colonels Commandant under the terms of W.O. Letter No. O.71/7/11/47 dated November 7, 1947.

3. The Officers' Funds shall include the Officers' Branch, Officers' Branch "A" and the Officers' Benevolent Society.

4. The Executive administration of the Officers' Funds shall be carried out by a committee composed as under:

Chairman: Director-General Army Medical Services.

Vice-Chairman: The Representative Colonel Commandant.

Ten Regular officers, serving or retired, who shall be subscribers to the R.A.M.C. Fund (Officers' Branch) and the Officers' Benevolent Society.

The Committee shall be elected at the Annual General Meeting to serve for one year. Retiring members shall be eligible for re-election.

5. *Annual General Meeting.*

The Annual General Meeting of Subscribers shall be held in June each year, as a general rule during Corps week. At least fifteen days' notice of the Meeting shall be given to all subscribers residing in Gt. Britain or Ireland whose addresses are known to the Committee.

SECTION II.—SCOPE AND OBJECTS OF THE OFFICERS' FUNDS

6. *Officers' Branch.*

The annual subscription shall be £1 except for subalterns and officers holding short service commissions whose subscription shall be 10s. per annum.

7. The objects of the Officers' Branch shall be

(i) To assist in maintaining the Corps Band and such other Corps organizations and amenities as may be determined by the Annual General Meeting of subscribers.

(ii) To commemorate the distinguished services of all ranks of the Corps by suitable memorials.

(iii) To pay an annual subscription to the Royal School for Officers' Daughters, Bath, and such other organizations for the benefit of all ranks of the Corps (serving, retired or ex-Service) as may be decided by the Annual General Meeting of subscribers.

(iv) In special cases to give grants to a limited extent to widows and dependants of officers.

8. *Officers' Branch "A."*

Object. To relieve to the extent of funds available cases of distress amongst officers who held commissions in the R.A.M.C. at any time during the period

September 1, 1939, to the end of the Second World War, their wives, widows and children, and of giving advice to these dependants when this is possible.

9. *Officers' Benevolent Society.*

The annual subscription shall be one guinea. Officers who have subscribed for fifteen years, or who make a single payment of ten guineas, shall be entitled to life membership.

Only officers who hold or have held regular commissions in the R.A.M.C. shall be entitled to take part in the management of the Society's affairs.

10. The funded property of the Society shall be inviolate. The interest derived therefrom, together with donations, and subscriptions, shall be available for distribution annually as the Committee may recommend, subject to the confirmation of the Annual General Meeting.

11. The objects of the Officers' Benevolent Society shall be to afford relief to those orphans of commissioned officers of the R.A.M.C. who may be left in circumstances of distress or who may be enabled, by a small addition to their income, to obtain a better education than their limited means would otherwise permit.

12. Orphans who have lost both parents shall be deemed to have a prior claim over those whose mothers are living.

Where there is an equality of claim, preference shall be shown to those orphans whose fathers subscribed to the Society.

13. Grants shall cease when the orphan attains the age of 21 years except in very special cases.

14. The relief afforded by the Society shall be in the form of a donation, and never in that of an annuity, even for a limited number of years. The total grant shall not exceed £60 in any one year. Grants shall not be made for more than one year at a time.

SECTION III.—RULES FOR THE COMMITTEE AND SECRETARY

15. The Committee shall meet quarterly in January, April, July and October.

16. *Powers of the Committee.*

(a) The Committee shall conduct the business of the Funds subject to confirmation at the Annual General Meeting.

(b) The Committee may appoint sub-Committees to deal with any special matter.

(c) The Committee shall be empowered to make grants within the scope and objects of the Funds as set out in paragraphs 7 to 14 above.

17. *Secretary.*

He shall be appointed under the terms agreed to by the Committee subject to confirmation by the Annual General Meeting.

He shall attend all Committee meetings and the Annual General Meeting and carry out all routine administrative duties in connexion with the funds.

He shall be empowered to sign cheques up to the amount of £20. Cheques for more than this amount shall be signed by the Secretary and by the Chairman or Vice-Chairman.

He shall be authorized to make grants of up to £10.

In cases of special urgency, where a delay entailed by postponing a decision until the next meeting would cause severe hardship, he may make grants of up to £20. All grants made by the Secretary shall be submitted to the Committee for covering approval.

He will maintain the accounts and shall prepare each year a report on the work of the various funds. This, together with the audited accounts, shall be submitted to the Annual General Meeting for adoption, after which it shall be printed and copies sent to members of the Committee and to medical units.

SECTION IV.—GENERAL RULES

18. *Trustees.*

The invested Capital of the Funds shall be held in the name of Messrs. Holt & Co., of 67 Lombard Street, London, E.C.3, as sole Trustees.

19. *Auditors.*

The Accounts shall be submitted annually to professional auditors who shall be appointed at the Annual General Meeting.

20. *Administrative Expenses.*

The share to be paid by the various Funds towards the Office and other expenses of the "R.A.M.C. Charities and Organizations" shall be decided by the Council of Colonels Commandant.

21. *Alteration of Rules.*

No alteration of the above Rules shall be made except as a result of a majority vote by the Annual General Meeting.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS

REPORTS AND ACCOUNTS FOR THE YEAR 1950

Obituary.

It is with profound regret that we report the death during the year of Colonel Matthew Burrow Ray, D.S.O., O.B.E., T.D., member of our Committee, who for so many years was the untiring Honorary Secretary of the Auxiliary Royal Army Medical Corps Funds.

1916 Fund. (*Benevolent and Relief.*)

The grants paid to seven families during 1950 from this Fund amounted to only £97 2s. 4d., as compared with £201 13s. 8d. in 1949. No sale of capital invested has been necessary during the year, and this Fund still holds £438 9s. 6d. in 3½ per cent War Stock, valued on December 31, 1950, at £415. With the ever lessening demands for assistance, this small Fund is likely to continue for some years.

Educational Fund.

The income of this Fund is a fixed sum of £203 3s. 0d., and once again this exceeds the expenditure in Grants, which for 1950 amounted to £107 10s. 2d. During the year assistance has been afforded to twelve families.

1939 Fund.

It is worthy of note that the income from subscriptions (£264) to this Fund has risen by some twenty guineas, compared with 1949 (£242). In addition, a donation of £150 has been received from the Territorial Army Medical Officers' Association, bringing the total from subscriptions and donations for the year to £414 2s. 7d. Added to this sum is the income from interest on investments which is again £234 18s. 2d.

There has been a substantial increase (£94) in the amount paid out in Grants, which was £578 1s. 6d. This total was distributed among eight cases, which indicates that the demands on this Fund are likely to increase in the future. It is somewhat remarkable that the administrative expenses which have always been extremely low, have again fallen by £6 compared with 1949 and amount to only £128 10s. 11d.

Once again we are greatly indebted to Messrs. Glyn, Mills & Co. (Holt's Branch) who continue to render gratuitous assistance by receiving and acknowledging contributions, arranging sales of investments and acting as Trustees.

MYLES L. FORMBY,

Colonel.

V. E. NEGUS,

Joint Honorary Treasurers.

11, Chandos Street, Cavendish Square, London, W.1.

April 1951.

COCKTAIL REUNION

A COCKTAIL reunion party was held at the Officers' Mess, Keogh Barracks, Army School of Health, on Sunday morning, July 29, 1951. The guests who came from far and near were received by Colonel and Mrs. Knott and were entertained with music by the Corps Band under the direction of Captain Brown. Despite the overcast sky many of the hundred guests were tempted by the brilliant herbaceous borders to stroll on the lawn and listen at close quarters to the music.

Among a very large gathering it was particularly pleasing to see so many distinguished members of the Corps. The Representative Colonel Commandant, General Sir Treffry Thompson and Lady Thompson, honoured us by coming all the way from Devon. Sir William and Lady McArthur came from London. It is of interest to recall that Sir William was the first Commandant of the Army School of Health in 1918—it was then known as the Army School of Sanitation. Other distinguished visitors were: Major-General

Young, the Director of Army Health, accompanied by Mrs. Young, General and Mrs. Wren, General and Mrs. Dowse, General and Miss McSheehy, General Barnsley and Colonel T. I. Dunn, our Officer i/c Records, accompanied by Mrs. Dunn.

The Mess was tastefully decorated by Mrs. Irvine: for the arrangements for drinks and food all thanks are due to Captain Sloan and Lieutenant Ross, without whose cheerful labours the party would not have been the great success it undoubtedly was.

ROYAL ARMY MEDICAL COLLEGE EVENING LECTURES

1951-1952

<i>Date</i>	<i>Subject</i>	<i>Lecturer</i>
Wednesday, October 10, 1951, at 5 p.m.	"A Gastric Gossip"	Sir Arthur Porritt, <i>K.B.E.</i> M.Ch., F.R.C.S.
Thursday, October 25, 1951, at 5 p.m.	"Recent Advances in Chemotherapy"	George W. M. Findlay, <i>C.B.E.</i> , M.D., F.R.C.P.
Thursday, November 15, 1951, at 5 p.m.	"The Meaning of Military Uniforms"	James Laver, Hon. RE. F.R.S.A., F.R.S.I.
Thursday, December 6, 1951, at 5 p.m.	"Some problems in the Chemotherapy of Tropical Diseases"	Brig. J. S. K. Boyd, <i>O.B.E.</i> , F.R.S., M.D., F.R.C.P.
Thursday, January 10, 1952, at 5 p.m.	"The Proper Sphere of Social Medicine"	Andrew Topping, F.R.S.Ed., M.A., M.D. D.P.H., F.R.C.P.
Thursday, January 31, 1952, at 5 p.m.	"Modern trends in the treatment of Carcinoma of the Breast" (with lantern slides)	Sir Cecil P. G. Wakeley, <i>K.B.E.</i> , <i>C.B.</i> , F.R.S.Ed. D.Sc., P.R.C.S.
Thursday, February 21, 1952, at 5 p.m.	"The Neurology of the Cervical Spine" (with lantern slides)	Walter Russell Brain, M.A. D.M., P.R.C.P.
Thursday, March 13, 1952, at 5 p.m.	"Common difficulties in the diagnosis of heart disease"	D. Evan Bedford, M.D. F.R.C.P.
Thursday, April 3, 1952, at 5 p.m.	"The Treatment of Hypertension"	Professor M. L. Rosenheim, M.A., M.D., F.R.C.P.
Thursday, April 24, 1952, at 5 p.m.	"Arthroplasty"	St. John Dudley Buxton, M.S., F.R.C.S.
Thursday, May 15, 1952, at 5 p.m.	"The Diagnosis of early Pulmonary Tuberculosis"	J. G. Scadding, M.D. F.R.C.P.

NOTES.—Admission free. Open to all members of the Medical Profession. Entrance from John Islip Street, near Tate Gallery, Westminster, S.W.1. Car Park—Ample facilities are available on the College Square.

R.A.M.C. ASSOCIATION HANDBOOK

THE third paragraph of copies of the letter dated July 29, 1951 should be cancelled and the following substituted:—

“At the twenty-third Annual General Meeting held on 15th June, 1948, the following resolution was passed: ‘That, as from 1st January, 1949, Life Membership of officer and other rank ex-service men should be 30s. and the Annual subscription of officer and other rank ex-service men should be 2s. 6d.’”

Reviews

THE STORY OF THE GROWTH OF NURSING AS AN ART, A VOCATION AND A PROFESSION. Third edition. By Agnes E. Pavey, S.R.N. 1951. London: Faber & Faber. Price 20s.

Miss Pavey, writing for “the general reader and for the senior schoolgirl who hopes to become a nurse, as well as for those already engaged in nursing or medical work,” has produced a compelling narrative of the progress of nursing throughout the world from its undoubted, even if unrecorded, origins to the present day of colleges and committees, regulation and legislation.

The three phases of the title are related to periods of time: from the dawn of history to the fourth century A.D., the few direct references to nursing which Miss Pavey has found in history and mythology, lore and legend, are presented against the medical and social background of the time. Nursing as an Art is almost invisible, but the tiny seed is discernible beneath the Golden Bough.

From the beginning of Christianity to about A.D. 1850, nursing is regarded as a vocation—by three voices. First, the voice of God calling men and women to His Service, and in so doing to care, not only for the sick, but also for the traveller, the homeless, the destitute. After the Reformation, the nurse was all too frequently attracted by the call of gain, with such glorious exceptions as the Sisters of Charity; while in the third phase, the voice of conscience can be heard, above the din of the Industrial Revolution, summoning the well-to-do to the help of their less fortunate brethren.

From about 1850 to the present day, nursing is presented as a profession, and here, surely, the timing is at fault. This part of the book opens with an appreciation of Miss Florence Nightingale, an apostle of vocation if ever there were one: the age of profession should begin in 1886. But modern nursing begins with Miss Nightingale: the claim of the New England Hospital for Women to have founded the first training school for nurses in the United States is depreciated as not being in the Nightingale tradition. Miss Pavey gives a full and graphic description of nursing in these last hundred years. Her prefatory apology to those who find their hobby-horses unriden will be

waved away in admiration of the skill with which she has presented so many facts from so wide a field, though, in a future edition, room might perhaps be found for Mrs. Sullivan (Matron, at 2s. 6d. a day) and her nurses (at 6d.. a washerwoman receiving 1s.) who accompanied John Hunter and the British Army to Portugal in 1762.

The work, unhappily, retains many errors of detail which closer proof-reading might have spared us: e.g. *Vespasian* (p. 86) is transmuted into his mother, *de l'Isle Adams* (p. 154), "conventional" for conventual (p. 147) and "Service (for "Serving") Brethren" (p. 171). Our own Surgeon-General Longmore is unrecognizable as "Laymon": Sir William Blizard fares better as "Blizzard." Abbot Islip died in 1532; the Royal Victoria Hospital, Netley, opened in 1863; and the singular of *scudi* is *scudo*. The book deserves a fuller and more accurate index; it also fully deserves Sir John Weir's tribute in his foreword, that "Anyone who dips into its pages is bound to read on."

J. B. N.

ROYAL NORTHERN OPERATIVE SURGERY. Second Edition. 1951. Pp. viii + 600. Lewis & Co. Ltd. Price 90s.

This book of 600 pages is the work of a number of Collaborators, and represents the practice of the Royal Northern Group of Hospitals, and has been fully revised.

It is easy to read, very well illustrated—and describes clearly for each operation the method in general use in this group of hospitals.

The special subjects have been omitted—and operations for cleft palate and hare-lip touched upon but briefly; but for the young Surgeon, here is a practicable and proved method of carrying out most of the operative procedures with which he will be faced.

The book is very well produced, and the illustrations clear.

A. G. H.

INSECTS AND HYGIENE. The Biology and Control of Insect Pests of Medical and Domestic Importance in Britain. By James Busvine, Ph.D., D.Sc. 1951. Pp. 482. Illustrations 58. London: Methuen & Co. Price £1 10s. 0d.

This book deals thoroughly and concisely with every aspect of entomology with which those in the British Isles who are not specialists in the subject are likely to be concerned. The format is excellent and allows the book to serve equally well for either systematic study of applied entomology or for reference purposes.

The book supplies a happy combination of basic knowledge and recent advances; the early chapters on structure and classification, anatomy and physiology and ecology of insects provide sufficient information to enable the non-specialist reader to understand the rationale of control measures. The later chapters on specific groups of insects—houseflies and blowflies, blood-

sucking flies, parasites, pests of food-stuffs, insect pests in waste products, clothes moths and carpet beetles, wood-boring beetles, stinging and biting insects, nuisances—all these constitute a mine of useful information. Of particular value are the tables giving the data of quantitative bionomics in respect of each insect of importance.

Three features of the book should be stressed, viz.:

(1) The chapters on control, which are excellently arranged and include information on the newer insecticides that one formerly had to unearth from various journals.

(2) The Appendices—here we find lists of insects with keys for their identification, and data concerning a wide range of insecticides with details of laboratory tests.

(3) The useful lists of references with which each chapter is garnished.

In spite of the fact that all this factual information is packed into a comparatively small volume the author has succeeded in making it very readable; his historical notes are particularly diverting.

A companion volume on insects of importance which are encountered outside the British Isles, particularly in the tropics, would be a welcome contribution to the literature on the subject.

M. M. L.

Obituary

Colonel ARTHUR CHOPPING, C.B., C.M.G.

IN Hythe, Kent, on August 9, 1951, Colonel Arthur Chopping, late R.A.M.C., Retired. Son of E. Chopping of Colchester, he was born there August 3, 1871. Having taken the M.R.C.S.England, and the L.R.C.P.London, in 1896, he was appointed Lieutenant R.A.M.C. July 27, 1899. Promoted Captain July 27, 1902, Major April 27, 1911, Lieutenant-Colonel March 1, 1915, Brevet Colonel January 1, 1919, and Colonel January 3, 1926, he retired August 3, 1928. He was made Honorary Associate of the Order of St. John, November 15, 1918, and an Officer of the Order, June 12, 1926.

In South Africa 1899–1902, he took part in the advance on Kimberley, including actions at Belmont, Enelin, Modder River, and Magersfontein. Actions at Lindley (June 1, 1900) and Rhenoster River. He received the Queen's Medal with four Clasps, and the King's Medal with two Clasps.

He served on the North-West Frontier of India in 1908 receiving the Medal with Clasp.

He served in France from August 15, 1914 till November 25, 1917 and in Italy from November 26, 1917, to March 30, 1919. Seven times mentioned in despatches, he was created C.B., and C.M.G. He received the Brevet of Colonel.

the Order of the Crown of Belgium (Officer), Belgian War Cross, Italian Order of the Crown (Officer), 1914 Star, British War and Victory Medals.

He again saw service in the third Afghan War in 1919, receiving a Clasp to his Indian General Service Medal.

In 1914 he married Edith, daughter of J. F. Newland of Glasgow, by whom he had one son and one daughter.

J. G. F.

WILLS AND BEQUESTS

HARDING, Lieutenant-Colonel D. L., R.A.M.C., Retired, of Watervill, Co. Cork, and Ballsbridge, Dublin (estate in England; duty paid £10,850). £45,337.

Colonel Harding died February 13, 1951.

[Extract from *The Times* August 22, 1951.]

J. G. F.

Lieut.-Colonel J. A. MANIFOLD, O.B.E.

LIEUT.-COLONEL J. A. MANIFOLD was the elder son of Major-General J. A. Manifold, C.B., D.S.O. He was born in 1912. He joined St. Thomas's Hospital in October 1931 and qualified M.R.C.S.England, L.R.C.P.London. in July 1936. He was appointed to a Short Service Commission in the R.A.M.C. in October 1936, and seconded for house appointments for a year, re-joining the R.A.M.C. in October 1937.

Early in his Army career he showed a natural bent for research work with a bias towards biochemistry. During the war while serving in India he was engaged in nutritional and hæmatological studies of Indian Army recruits, and in 1945 was appointed Assistant Director of Pathology Research at G.H.Q. India. On his return to the United Kingdom he was posted to the R.A.M. College and then to the War Office. He became Assistant Director of Pathology. Eastern Command, when the laboratory was re-established at Millbank. He did not forsake the College entirely but continued to assist in the teaching there.

Those students who first met John Manifold in the early post-war Senior Courses at the R.A.M. College could not have been other than impressed by the enthusiasm which he put into his teachings. Morbid histology, biochemistry and hæmatology were his favourite subjects.

While at the War Office he conceived the idea of an Army Tumour Registry, and was responsible for having it set up in the R.A.M. College. The success of this project has been shown by its growth in recent years since its establishment in April 1948. With his usual flare for being abreast of modern methods, it was he also who was responsible for having the E.E.I. Photo-electric Colorimeter introduced into all military laboratories at home and overseas.

He was seconded to the Foreign Office for work in Saudi Arabia. The magnificent efforts in the field in preventing the spread of an outbreak of smallpox

in Jeddah both by John Manifold and his wife were recognized by the award of the *M.B.E.*, to Mrs. Manifold in June 1950, and the *O.B.E.*, to John himself in the New Year's Honours List of 1951.

With his sudden and untimely death in Saudi Arabia the R.A.M.C. has lost an irreplaceable colleague not only in the Corps but in the field of pathology. The Tumour Registry will, however, remain a memorial to John Manifold's foresight and enthusiasm.

Our sympathy goes out to his wife and young daughter and to his father.
A. S.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library:

Practitioner, Military Surgeon, Medical Press, Bull. of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bull. of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Roy. Inst. of Public Health and Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Revista de Medicina Militar, Proc. of the Roy. Society of Medicine, Journal of the R.A.S.C., Bull. International de Services de Sante, Tropical Diseases Bull., Edinburgh Medical Journal, Journ. of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journ. of the Royal Egyptian Medical Assn., Revue de Corps de Sante Militaire, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology and Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Military Review, British Journal of Dermatology and Syphilis, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette, Revista Médica de Aeronautica N.A.P.T. Bul.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s., payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

Journal

OF

THE

Royal Army Medical Corps



ISSUED

MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

ORIGINAL COMMUNICATIONS	PAGE		PAGE
Criticism of Military Psychiatry in the Second World War. By Captain J. C. J. L'ETANG, B.A., B.M., Ch., R.A.M.C.(T.A.)	316	J. T. ROBINSON, O.B.E., M.A., M.D., D.P.M., D.T.M.&H., and Captain H. B. KIDD, B.A., M.B., B.Ch. ..	363
Long-range Jungle Operation in Malaya—1951. By Captain M. O. ORSTER, R.A.M.C.	328	A Low Temperature Temoine Tube for Indicating Failures in Refrigeration. By Major A. W. MORROW, B.A., B.Sc., R.A.M.C., with Technical Assistance of Corporal A. J. GRIFFITHS, R.A.M.C.	372
Swims, Fits and Faints. By Captain P. P. BRADSHAW, M.D., M.R.C.P., R.A.M.C.(N.S.L.)	340	"Q" Fever: A New Disease in Armies. By Lieut.-Colonel BASIL BLEWITT, M.D., D.T.M.&H.Eng., R.A.M.C. ..	377
Reception and Training of Zeservists 1951. By Lieut.-Colonel B. HEUGH, R.A.M.C., Lieut.-Colonel T. H. WILSON, O.B.E., T.D., R.A.M.C.(T.A.), and Major W. F. C. VEALE, T.D., R.A.M.C.(T.A.)	348	AT RANDOM. Psychiatric Wastages TRAVEL AND HISTORY	389 392
Infected Hand. By Lieutenant L. GARDENER, M.B., M.R.C.P.E., R.A.M.C.	359	CLINICAL AND OTHER NOTES	
essions of the Use of "Antabuse" the Treatment of Alcoholism the Army. By Lieut.-Colonel		Improvised "Tin" Incinerator. By Captain J. P. A. DEVITT, R.A.M.C.	399
		CORRESPONDENCE	401
		MATTERS OF INTEREST	403
		REVIEWS	412
		EXTRACTS FROM "LONDON GAZETTE"	415
		NOTICES	419



S T A P L E S P R E S S

STAPLES PRESS LIMITED

STAPLES PRESS INCORPORATED

Mandeville Place, London

70 East 45th Street, New York

Price Three Shillings and Sixpence net

Digitized by Google

AIDS TO MODERN TREATMENT

E.S.T.P (Martindale)

The original colourless Coal Tar Cream with all the therapeutic advantages of crude coal tar.

An invaluable anti-pruritic in all forms of eczema, pruritus, psoriasis, occupational dermatitis, etc.

DICODID

For use in the symptomatic treatment of cough.

A selective antitussive with a cough-depressant action more prompt and more prolonged than that of codeine.

Well tolerated and non-constipating.

ASPRIODINE

A definite chemical compound embodying the anti-arthritic and anti-rheumatic properties of Aspirin combined with the stimulating and corrective effects of Iodine.

Prompt in action and well tolerated.

NEO-OCTON

A new synthetic antispasmodic for the relief of smooth muscle spasm.

Indicated in all cases of spasm of the gastro-intestinal and genito-urinary tracts.

Prompt relief and well tolerated.

NEODRENAL

In the treatment of bronchial asthma.

The new, rapid and potent bronchodilator. Often effective when other drugs have failed.

Available in the form of sublingual tablets and an 'oral' spray solution.

Literature gladly sent on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone : WELbeck 5555 (20 lines)

Telegrams : " Instruments, Wesdo, London "

When writing advertisers please mention "Journal of the R.A.M.C."

**Authors are alone responsible for the statements
made and the opinions expressed in their papers.**

Journal of the Royal Army Medical Corps

Christmas Greetings 1951

FROM THE D.G.A.M.S. TO ALL RETIRED OFFICERS

I SEND by means of the Corps Journal, my hearty greetings
and good wishes for Xmas and the New Year to all retired officers
of the Corps.

**FROM THE EDITOR, THE JOURNAL
TO ALL CONTRIBUTORS, SUBSCRIBERS AND READERS**
HOPING that this will reach you in time for the Festive Season.
We offer our most grateful thanks for your support and encourage-
ment and send you the best wishes for the season and the coming
Year.

Original Communications

**A CRITICISM OF MILITARY PSYCHIATRY IN THE
SECOND WORLD WAR**

BY

Captain H. J. C. J. L'ETANG, B.A., B.M., B.Ch.

Royal Army Medical Corps (T.A.)

(Continued from page 244)

PART III

HISTORICAL SURVEY

(a) 1864-1938

THE history of war is nearly as long as life itself, and nervous disorders resulting from the strain of war are likely to have occurred since early times. However, the first clinical description of these disorders would appear to have been made as late as 1864 by Weir Mitchell during the American Civil War [8], [9]. He remarked that there were no organic abnormalities to account for the symptoms of many military patients, and he advised that, provided a thorough examination had been made, these men should be returned to their units. Weir Mitchell described these men as malingerers but there can be little doubt that in the majority of cases, hysterical or neurotic influences played a part.

It is curious that no reference to this type of disorder is made in the accounts of the campaigns of Wellington and Napoleon, or in the detailed medical history of the Crimean War. The more dramatic cases may have been treated as disciplinary problems, the moderate cases may have been diagnosed as organic diseases, and the minor cases were probably ignored.

A discussion held in London in 1897, on the "Psychology of the Battlefield" [10] shows that doctors and soldiers must often have considered the problem of fear in battle. The main speaker, a combatant officer called Herbert, observed that heroes and cowards constituted an insignificant part of the army. The subject of nervous breakdown was not discussed, but Herbert emphasized certain factors which increased the efficiency of a fighting soldier. He considered that recruits should be taught the history of their country, and the causes of the war in which they were fighting, and they should have impressed upon

them the virtues of self-sacrifice, discipline and obedience. Herbert believed that education and instruction could convert an unwilling soldier into a willing soldier, in contrast to Weir Mitchell's belief, that discipline and compulsion were the deciding factors.

In the South African [11] and Russo-Japanese War [12], cases of battle neurosis were few in number, and references are scanty. In view of this, it is hardly surprising that the vast increase of neuroses in the First World War took the medical profession of all countries by surprise. Between 1914 and 1918, the armed forces of the United Kingdom mobilized seven million men, a large proportion of whom were conscripts. The medical examination of recruits was often perfunctory, and in 1916 when more thorough methods of examination were instituted, attention was mainly concentrated upon organic defects. It was not until 1918 that an attempt was made to assess the mental stability of a recruit.

No record has been compiled of the number of cases of battle neurosis in the First World War, nor are the figures from the Ministry of Pensions complete. Such records as are available reveal one very interesting fact, namely, that from this vast army of incompletely examined and totally unselected men, the 100,000 who were pensioned for psychiatric disorders had all served on an average for eighteen months in an active theatre of operations [3]. It requires little imagination to visualize what "eighteen months in an active theatre" meant in the first war, and there is no doubt that these pensioners, who had been exposed to the greatest strain ever experienced in any war, had performed a valuable service before they broke down.

In 1920 the Southborough Committee was convened to discuss every aspect of what had unfortunately been called "Shell Shock." The original intention was to disprove the popular fallacy that battle neurosis was a separate entity, due to the blast or concussion of high explosives. The Committee published a "Report" in 1922 [13], which was the first fully documented volume to appear on the war neuroses, and is of particular interest because it quotes in great detail the opinions of doctors and combatant officers who had experienced active service.

The following paragraphs are selected from the summary of evidence given before the Committee:

1. "Any type of individual may suffer from one or other form of neurosis if exposed for a sufficient length of time to the conditions of modern warfare, and it is extremely difficult to say beforehand what type of man is most likely to break down, the only certain test being exposure to battle conditions. . . ."
2. ". . . it was admitted that there are certain individuals who are unlikely ever to become efficient fighting soldiers. No general characteristics of such individuals were given."

Among the major conclusions of the report was one destined to have far-reaching effects for it profoundly influenced psychiatric policy in the Second World War.

3. "Stress was laid by several witnesses on the desirability of eliminating during training those individuals who whether physically, mentally or temperamentally are unlikely to make good as fighting soldiers"

It is of interest that the statements in the first two paragraphs indicate the difficulties of carrying out the recommendation quoted in the third paragraph while none of the witnesses could suggest how such selection might be made. Indeed, some thought that accurate selection was impossible. General Goodwin Director-General of the Army Medical Services, stated:

"Actual war is the really final crucial test of nervous instability in a soldier ... many men who are apparently unstable gain self-confidence, and after training become excellent soldiers."

Rogers mentioned three well-known boxers who had a reputation for courage in the ring, but who developed "shell shock" in the line, while Pritchard Taylor observed:

"You can never tell how a man is going to do in action until you have seen him there. Some gay and sporting types which one imagines would do well are useless; other foppish idiotic types do splendidly."

Sir James Galloway, Consulting Physician to the Army and to Charing Cross Hospital, referred to the selection methods used by psychiatrists in the American Army in 1917 and 1918, which he did not consider very satisfactory, for in his opinion "shell shock" casualties were not greatly diminished.

It would appear that an obvious field for such prophylactic selection would be amongst soldiers who showed signs of nervous instability, or had already broken down in action. Practical experience, however, showed that no definite ruling could be made, for the well-known neurologist W. J. Adie stated:

"Many of us were suffering more or less from shell shock which made us not so efficient, and yet we remained in the line."

That acute observer Sir Arthur Hurst made a similar observation:

"Practically every man coming out of the (Gallipoli) Peninsular was neurasthenic, whether he was supposed to be fit or not."

Even those who possess the Victoria Cross have similar feelings, for Hollbrook, a Submarine Commander, observed:

"I used to feel in an awful funk at times. It is absurd to say that you do not."

Evidence from other witnesses tended to show that human behaviour in war is unpredictable. Burnett cites the case of a man who was tried for cowardice and sentenced to be shot. The sentence was held over, and the next time the man went into action he was recommended for the Distinguished Conduct Medal. Salmond mentions a pilot who was sent back to England "a nervous wreck." After leave and a period of instruction, he returned to France ten weeks later and won the Military Cross and Bar. Finally, an anonymous witness—a doctor—paints a graphic picture of how he broke down in action. Subsequently he returned to the line, and was able to carry on for the remainder of the war.

The only really tangible suggestions for the prevention of battle neurosis were those which recommended a high standard of welfare and man management.

To quote General Goodwin :

"In a really good well-trained, well-disciplined regiment, no matter what the stress, there is comparatively little in the way of breaking down."

Professor Roussy, Neurologist to the French Army, observed that in undisciplined troops, neuropathic or hysterical disorders were frequently seen, and even became contagious.

One particular piece of evidence hardly attracted as much notice from the Committee as might have been expected. Mapother stated that in his opinion some cases of anxiety neurosis were consciously protracted and exaggerated. Fifty years previously Weir Mitchell found that the histories given by soldiers in hospitals when away from their units were often unreliable.

The report of the Southborough Committee is extraordinarily comprehensive and little is omitted that has a bearing on the psychiatric disorders of war. There are certain points of significance stressed in other articles and records which must be mentioned.

Birley [14] described his experiences with the Royal Air Force in the Goulstonian Lectures for 1920, and confessed that it was difficult to predict how any man would behave in action, and that accurate selection was impossible. Rook [15] stated that many men with unstable vasomotor systems, as shown by marked changes in blood pressure and pulse-rates for only slight cause, made the most daring pilots.

Manifold [16], who served as Assistant Director of Medical Services with the Australian Forces, mentioned two factors which tended to increase the incidence of neurosis. Firstly, there had been considerable talk about "shell shock" in the lay and medical press and soldiers were apt to regard this as a new and fashionable complaint. Secondly, he considered that there was a tendency on the part of soldiers and doctors to attribute fatigue and natural apprehension to "shell shock." Many years later, Hastings Willis [17] observed that doctors attributed symptoms such as palpitations, breathlessness, and pain in the chest to "disordered action of the heart." Although this syndrome was described by Da Costa in 1871, it was not until 1917 when many thousands of men had been discharged, that it was realized that this was a functional condition.

(b) 1938-1948

All the evidence that has already been quoted was available at the beginning of the Second World War, and some of the doctors who had given evidence before the Southborough Committee were still in practice. However, the authorities turned to the younger generation of psychiatrists for advice on the possible incidence of war neuroses following air raids. A measure of their inexperience is reflected in their inaccurate forecast of three to four million psychiatric casualties [18].

In 1940, psychiatrists were appointed to all three Services and in 1942 a "Directorate of Psychiatry" was established at the War Office [46]. The psychiatric policy was based on the recommendation of the Southborough Committee which has already been quoted:

"The desirability of eliminating during training those individuals who whether physically, mentally or temperamentally are unlikely to make efficient soldiers."

It has not been possible to discover if the Directorate of Psychiatry ever issued detailed instructions as to how this selection was to be carried out, but it is more than probable that the consultants were only able to issue a general directive based on the paragraph already quoted. Even the witnesses before the Southborough Committee never succeeded in stating exactly how mental instability in a recruit could be measured, assessed or defined. Psychiatrists did eliminate a large number of men, but they based their diagnosis of unsuitability on many of the points that witnesses before the Committee stated were unreliable. Towards the end of the Second World War and in the years following many psychiatrists and neuropsychiatrists themselves indicated that methods for the selection of personnel were fallible.

Symonds and Williams [19] discussed their experience in the Royal Air Force during the Second World War and concluded that with regard to predisposition, investigation would reveal in most people some imperfection in the family or personal history. They examined twenty-four members of air crew who showed neurotic characteristics of a severe nature. Had these men been prevented from joining the Royal Air Force, it would have saved training 16 men who failed to complete the course, but it would have lost 8 men who ultimately flew in operations, one of whom won the Distinguished Flying Medal. Had those with mild neurotic traits been rejected, it would have saved training 9 men who proved incapable of going on operation but 19 men would have been excluded, who completed more than half an operational tour, and of whom 7 had won decorations. Psychiatrists cannot usually serve in the front line, but those who did seemed to be less impressed with selection methods than their colleagues who served at the Base. Grinker and Spiegel [20, 21] worked with an American "Regimental Combat Team" in North Africa, and in their experience some men with satisfactory past histories broke down early, while men with evidence of neurotic predisposition carried on. They drew attention to the difficulties of evaluating a past history of neurosis. They observed that after being asked leading questions, a man who has developed a neurosis may have his attention drawn to "nervousness" in the past; while the healthy soldier will tend to deny any such influence.

There is further evidence to show that such selection methods are unreliable. Hastings, Glueck, and Wright [22], discussing their experiences in the American Air Force, stated that they examined 60 cases of psychological failure, and concluded that these were not individuals judged to be predisposed to breakdowns. They then studied successful members of air crews, and found that their family histories showed emotional instability in nearly half the cases, and their own

life patterns showed emotional instability in a further half, with psychoneurotic tendencies in nearly one-third. One interesting observation was that in nearly every case tension was relieved by combat duties. The authors state that unit surgeons remarked that they were frequently surprised by the men who did become psychiatric casualties, and were equally surprised that certain individuals whom they had suspected would not stand up to combat, did so with ease. Sinclair [23], the Australian psychiatrist, admitted that an exhaustive pre-enlistment psychological examination might exclude potentially useful men, and added that it is possible for the Army psychiatrist, while acting in quite good faith, to be a hindrance rather than a help in military medicine.

Hallcran [24] the first "Adviser in Psychiatry" to the United States Surgeon General observed:

"There are many who could have passed any known test but who break under certain pressure—the assumption that psychiatric disorders occur only in predisposed individuals is not supported by experience."

Dillon [25], an English psychiatrist who had had considerable experience of the problem in the First World War, stated in 1940:

"Neuropsychiatric disabilities commonly occurred with a clear personal and family record—many men with histories indicating predisposition recovered rapidly and returned to their units after a period of treatment."

Porter [26], another American psychiatrist confessed:

"I feel there really exists a danger that we military psychiatrists may become psychiatrically over-zealous and reject men who are capable of military service."

Even the two English enthusiasts for selection procedures had second thoughts for G. W. B. James [6] wrote:

"We must still ask ourselves whether we as psychiatrists, with our psychological colleagues, are always able to devise methods which will pick out for rejection the right material,"

and earlier in the war Rees [3] had admitted:

"Many men with well-marked neurotic predisposition stand up for a long time to the most trying front-line fighting but on the whole the inadequate man and the dullard crack very quickly and are better excluded."

Finally, a Canadian Army psychiatrist, A. A. James [27] observed:

"There are great masses of people with defects of all sorts. In fact, few are without some deviation from the ideal."

Lewis and Slater [28] listed the personality traits that might be present in psychoneurotics, and observed that the fewer the traits in an individual, the greater the chance that he would remain in the Army. They emphasized that prognosis could not be based simply on the number of adverse traits present but that their intensity and nature, together with favourable traits and attributes, would have to be considered.

Other psychiatrists furnished evidence which indicated that a man with

an anxiety state may perform reasonably well in action. Early in 1940, Miller, referring to his experience in the First World War said [25]:

"As a group, the psychological patient served as long, and at least as well, as the average soldier; in fact, the proportion of men with neuroses who received decorations for valour showed little difference from the proportion of other soldiers who received decorations."

Spiegel [20, 21] observed that anxiety was a normal state in the front line, that gallant and heroic work was done by men and officers in acute anxiety states, and a considerable amount of combat duty was performed by men suffering from severe anxiety:

"A tense tremulous soldier was not necessarily a psychiatric casualty: often he was not a casualty, because he was not permitted to be one."

In the United Kingdom it was difficult to criticize the psychiatric policy, for, as a result of that policy, no opportunity was given of seeing how those cases which were sent away from front-line units would have behaved in action. Several interesting observations were made in the American Army, which indicated that the neurotic soldier conducted himself almost as well as the reputedly normal soldier.

Needles [29] studied 17 neurotic soldiers who had served sixty or more days in combat and found that factors such as determination, discipline, conscientiousness, and contact with friends helped them to overcome their fears. He also examined this group for evidence of neurotic symptoms and traits, and found no essential difference in a group of soldiers who broke down early, and in a group with relatively long survival periods.

Coleman [30] followed 46 infantry soldiers who were considered to be psychiatrically unfit, and after nineteen months in the Pacific theatre of war, 35 were still serving.

Plesset [31] a psychiatrist who served with an American Division, followed 138 psychiatric cases who went into action; 137 remained after 30 days' combat, 134 remained after 60 days, and 120 were still serving at the end of the war. Of the entire group 9 received the Purple Heart, and 8 the Bronze Star. Plesset considered that the only practical method of measuring the tolerance of psychoneurotics was to expose them to stress, and he wondered how many of those who were discharged would have adjusted to battle conditions. Weatherly [32] describes how on December 7, 1941, during the Japanese air attack on Oahu, Hawaii, many patients with neuroses such as mild constitutional psychopathy, hypochondriasis, nostalgia and other borderline states, made at least a temporary adjustment under the stimulus of enemy action, and rendered helpful service.

In the diagnosis of psychiatric disorders an accurate history is essential, and considerable experience and judgment are required to obtain such a history. Many doctors and combatant soldiers felt that Service personnel were deliberately deceiving psychiatrists during their examinations, although the psychiatrists denied this. Sinclair [23] describing his experience with Australian

troops, stressed the tendency of the neurotic soldier to overstate his case, and added that when a neurotic soldier was due for discharge, he would often tell the doctor that he had just remembered other psychological symptoms, or even psychological difficulties in childhood. Sinclair was interested to find that drivers would complain of lapses of memory or giddiness, clerks would develop visual difficulties, and storemen would complain of backache, though all these symptoms would disappear when their presence was neither necessary nor profitable. American psychiatrists confirmed these findings. Flicker [33] went as far as to say that in military life there was a degree of malingering in most psychoneurotic cases, and that they exaggerated their symptoms. In the same way as Manifold before him, Koontz [34] who served in the American Army, said that there was too much emphasis on psychiatric problems in the newspapers and journals. He considers that many men feigned psychiatric conditions to evade service, both on entry into the forces, and in theatres of operations. Evidence had been secured to show that men learned from others who had already been invalided for psychiatric disorders, how to answer questions and give their history. Solomon [35] re-examined a series of men in the United States who had been rejected for psychoneurosis, and found that they tended to exaggerate the severity of their various complaints, but when asked for precise clinical details they became argumentative, evasive or even belligerent. All of them were performing regular work, and the majority were working overtime. When some were told that they appeared fit enough for active service, they described further symptoms which would render such a return impossible. In Solomon's opinion, the majority of these psychoneurotic cases were malingering, or at least exaggerating.

Psychiatric methods in the British Army were based on those used by Salmon in the American Army of 1917, and Service psychiatrists of both countries approached their problems in very much the same way. It is particularly significant that in 1948, Menninger, the Consultant in Psychiatry to the United States Surgeon General [36], concluded that psychiatrists in America had been acting upon the wrong principles. He admitted that when armies are expanding rapidly, psychiatrists cannot receive a proper training. He remarked that psychiatrists paid too much attention to the individual rather than to the group, and failed to differentiate between a psychoneurosis and a faulty attitude. He stressed that failure to realize that the average man is adaptable, linked with the other defects mentioned, resulted in far too many men being discharged unnecessarily with psychiatric disorders.

This large-scale invaliding was frequently justified by psychiatrists on the grounds that there was no time and no opportunity for treatment. However, simple reassurance coupled with an early return to the unit were frequently all that was required.

Towards the end of 1939 and during the early months of 1940, psychiatric cases poured into British Military Hospitals, their symptoms being mainly related to gastro-intestinal tract. Hastings Willis [17] had studied cases

of "effort syndrome" twenty-five years previously and had called the first war "a cardiac war," and he said that the Second World War might well be called "a stomach war." He remarked that doctors examined the misfits and mal-adjusted, and, by a series of leading questions, "elicited" a history of dyspepsia. The soldier was then passed to a hospital for radiological examination, and, if no organic lesion was found, the dyspepsia was called "functional" and the man referred for a psychiatric opinion. Hastings Willis speaks of his experiences in the Australian Army, but similar cases caused much wastage in the British Army in the early part of the war. Tidy [37] found that exaggeration of gastric symptoms was not uncommon, and tended to increase with each admission to hospital. Tidy approached the problem in the same way as Weir Mitchell, and advised that cases of functional dyspepsia should be returned to their units, where many of them subsequently became useful soldiers. Following the adoption of this policy the wastage due to the gastric neuroses was checked.

Even when men have broken down in battle, simple methods often achieve good practical results. In November 1944 an Army Commander in North-West Europe set up a tribunal to review the cases of men who had already served three months in prison for misconduct in the face of the enemy. This tribunal was empowered to suspend sentence on suitable men who were willing to return to the front line. They were told that if they did well their sentence would be remitted, but were warned of the serious consequences of any further misconduct.

The tribunal examined 596 men, and returned 435 to the front line. Of these men, 70 per cent gave a satisfactory account of themselves, and 22 per cent failed again [38].

Senerchia [24] has described the formation of a special unit in America to conserve man-power, by retraining psychoneurotics. Training was devoted to the development of a positive attitude towards the war in individual cases, and to increasing individual and group morale. 60 per cent of these cases were returned to duty in the American Home Forces.

In many of the cases that were discharged no treatment, psychological or otherwise, was needed at all. Herbert Moran's book was published after his death, but Simon, who worked with him at the Colchester Military Board, had a unique opportunity of studying the cases recommended for discharge by psychiatrists. In a letter to the *Daily Telegraph* he wrote:

"Many were not bright. They could not do everything that might be expected of them, but there were many things that they could do and do well. We were both convinced that if we personally had had the handling of them they would have given no trouble whatever, and thought it seemed the height of folly to send them back to civil life. We thought that nothing like the best was being got out of many of these men, and that many psychiatrists could not recognize the infinite gradations of human beings who are more or less normal (they could find something abnormal about everybody). How could they be expected to, when such special experience as they had was mainly confined to the very abnormal mind? But their word went."

CONCLUSION

In the writer's opinion psychiatric methods and policies in the Second World War may fairly be criticized on the grounds that they resulted in an inaccurate assessment, diagnosis, and disposal of so-called psychiatric cases, and that they failed to make any provision for rehabilitation or treatment of these cases. Further it can be shown that the pursuit of this policy was a serious drain on man-power and had an adverse effect on the war effort.

It is relatively unimportant that the policy of prophylactic selection failed to prevent battle neuroses. Indeed criticism of the policy on this point must allow for the fact that no figures are available to compare the incidence of battle neuroses in each world war, nor was every unit completely screened by the psychiatrists before leaving the United Kingdom. What is far more important is that the policy which had been designed to render the armed forces more efficient, certainly weakened the Armies as a fighting force. This may be illustrated if the strengths of the armies at the end of each world war are compared.

In August 1945, the British Army contained 2,931,000 men [39], and maintained the equivalent of approximately 30 Divisions overseas. As a contrast the Army in December 1918, though 30 per cent larger with 3,818,000 men could maintain more than twice as many active Divisions overseas—namely 66 [40].

After June 1944, the Army was short of infantry replacements. As a result two Divisions in the British Army of Liberation had to be disbanded, and two Divisions had hurriedly to be moved from Italy in 1945 to complete the defeat of the German Army in Northern Germany. A large number of men who might have served as replacements were tied to Base and non-combatant duties on psychiatric advice. Much of the work performed by these men was valuable, but at the time, the shortage of reserves was so great that men were being transferred into the Infantry from even more important and vital posts in the Artillery, Service Corps, Royal Navy and Royal Air Force.

In another war the fighting component of the British Army will have to be increased, especially as the most likely enemy will make full use of every man, woman and child in his considerable population. Rehabilitation and training can do much to enable the psychiatric case to adjust to life in a fighting community, always bearing in mind that the large majority of normal men who adjust without protest have to make a considerable effort.

Should these methods fail, force of circumstance will surely compel doctors and psychiatrists to dispose of their psychiatric cases in a different manner than in the Second World War, when the British policy was to remove from stress any man likely to break down in action. Admittedly the American policy was similar, but the United States contains a population of 130 million, and could view the loss of 315,000 psychiatric cases from its Army between 1941 and 1945 with comparative equanimity [41]. While America may be able to continue this policy, the United Kingdom will have to reverse it and retain doubtful,

mild or borderline cases in the fighting line, while only evacuating the grosser disorders to the Base.

In these circumstances many men will be referred for psychiatric opinion, and the temptation to release men from stress will be very great. All Service psychiatrists should ponder upon the words of their colleagues. Plesser [31], whose work has been mentioned previously:

"It would be well to bear in mind constantly that while the task of the civilian psychiatrist is often to help a patient satisfy himself and to function satisfactorily and contentedly, the goal of the Army psychiatrist must be the efficient functioning of the individual as a soldier, without primary regard to satisfaction or contentment. Symptoms that arise from dissatisfaction are not always incapacitating. Many people suffer in war. The criterion of one's ability to perform military duty should not necessarily include happiness at the task."

REFERENCES

- [1] Parliamentary Notes (1947) *Lancet*, **1**, 728.
- [2] Report of Expert Committee on the Work of Psychiatrists and Psychologists in the Services (1947).
- [3] REES, J. R. (1945) The Shaping of Psychiatry by War. T. W. Salmon Memorial Lectures.
- [4] SLATER, E. (1943) *J. Neurol. Psychiat.*, **6**, 1.
- [5] MORAN, H. M. (1946) In my Fashion.
- [6] JAMES, G. W. B. (1945) *Lancet*, **2**, 802.
- [7] HURST, A. F. (1944) Medical Diseases of War.
- [8] KEEN, W. W., MITCHELL, S. W., and MOREHOUSE, G. R. (1864) *American J. Med. Sci.* **48**, 367.
- [9] ——— (1864) Gun Shot Wounds and Other Injuries of Nerves.
- [10] HERBERT, H. V. (1867) *J.R.U.S.I.*, **41**, 490.
- [11] MORRIS, C. A. (1901) *Brit. Med. J.*, **2**, 1559.
- [12] RICHARDS, R. L. (1910) *Milit. Surg.*, **26**, 177.
- [13] Report of War Office Committee of Enquiry into Shell Shock (1922).
- [14] BIRLEY, J. L. (1920) *Lancet*, **1**, 1147, 1205, 1251.
- [15] ROOK, A. F. (1939) *J. R. Nav. Med. Serv.*, **25**, 203.
- [16] BUTLER, A. G. Official History of the Australian Army Medical Services (1914-1918). Vol. 3, p. 107.
- [17] HASTINGS WILLIS, H. (1946) *Med. J. Aust.*, **1**, 912.
- [18] TITMUSS, R. M. (1950) Problems of Social Policy.
- [19] SYMONDS, C. P., and WILLIAMS, D. (1947) Psychiatric Disorders in Flying Personnel of R.A.F.
- [20] SPIEGEL, H. X. (1944) *Amer. J. Orthopsychiat.*, **14**, 381.
- [21] GRINKER, R. R., and SPIEGEL, H. X. (1943) War Neuroses in North Africa—the Tunisian Campaign.
- [22] GLUECK, B. C., HASTINGS, D. W., and WRIGHT, D. G. (1944) Psychiatric Experience of 8th Air Force (1942-3).
- [23] SINCLAIR, A. J. M. (1944) *Med. J. Aust.*, **1**, 501.
- [24] Manual of Military Neuropsychiatry (1944).
- [25] MILLER, E. (1940) The Neuroses in War.
- [26] PORTER, W. C. (1942) *War Medicine*, **2**, 543.
- [27] JAMES, A. A. (1950) *Canad. Army J.*, **4**, No. 1.
- [28] LEWIS, A., and SLATER, E. (1942) *Lancet*, **1**, 496.
- [29] NEEDLES, W. A. (1945) *Bull. U.S. Army Med. Dept.*, **4**, 673.
- [30] COLEMAN, J. B. (1945) *J. Mil. Med. in Pacific*, **1**, 32 (quoted by W. C. Menninger)

- [31] PLESSET, M. R. (1946) *Amer. J. Psychiat.*, **103**, 87.
 - [32] WEATHERBY, F. E. (1943) *War Medicine*, **4**, 270.
 - [33] FLICKER, D. J. (1942) *Amer. J. Psychiat.*, **98**, 795.
 - [34] KOONTZ, A. R. (1947) *Mil. Surg.*, **101**, 204.
 - [35] SOLOMON, A. P. (1943) *Diseases of Nervous System*, **4**, 78.
 - [36] MENNINGER, W. C. (1949) *Psychiatry in a Troubled World*.
 - [37] TIDY, H. L. (1941) *J.R.A.M.C.*, **77**, 113.
 - [38] PHILLIPS, R. J. Personal Communication.
 - [39] Strength and Casualties of the Armed Forces and Auxiliary Services of the United Kingdom (1939-45).
 - [40] Statistics of the Military Effort of the British Empire during the Great War.
 - [41] Annotation (1945) *Lancet*, **2**, 547.
 - [42] MARRIOT, H. L. (1949) *J.R.A.M.C.*, **93**, 72.
 - [43] APPEL, J. W., and BEEBE, (1946) *J. Amer. Med Ass.*, **131**, 1469.
 - [44] MAYER-GROSS, W. (1939) *Lancet*, **2**, 1327.
 - [45] CURRAN, D., and MALLINSON, W. P. (1940) *Lancet*, **2**, 738.
 - [46] AHRENFELDT, R. H., and TORRIE, A. (1948) *J.R.A.M.C.*, **90**, 327.
-

A LONG-RANGE JUNGLE OPERATION IN MALAYA—1951

BY

Captain M. O. FORSTER

Royal Army Medical Corps

THIS report was originally submitted in a somewhat different form to the Commanding Officer of a Unit specializing in long-range jungle operations in Malaya, and its purpose was to attempt to ascertain the effects of one such operation on the health of the men concerned by detailed examination of factors which might be supposed to influence their physical and mental well-being.

Any conclusions reached may prove to be false, for the simple reason that enough men have not been examined and questioned over a period covering several operations of comparable length.

To obtain the information required a questionnaire was prepared for each individual. Publication of the questionnaire is not possible but it included the following:

Age of individual.

Time spent in the Far East in present tour. This fact was elicited in case some relationship could be traced between the development of systemic and skin diseases and the period of time spent in the Far East.

Naturally no conclusions could be reached on this question after consideration of a single operation. Weight of individual on departure for, and return from, the jungle.

An appreciation of the skin condition on departure for, and return from, the jungle.

The general skin condition was first assessed, and, in so doing, personal criteria were inevitably invoked. The following classification was employed:

Excellent.—No skin lesion of any kind.

Good.—No skin lesion apart from "foot rot" (fungus infection) which was quiescent.

Fair.—Active "foot rot." Tinea cruris (crutch) or corporis (body) and impetigo etc., which were being treated and resolving: small jungle sores or unhealed scratches.

Poor.—All other cases. Note was then made of the condition of the axilla, body, crutch, legs and feet.

Regularity with which "Paludrine" was taken.

Regularity with which vitamin tablets were taken (the vitamin tablets were either the R.A.S.C. issue "Multivite" or the vitamin tablets found in certain rations).

Regularity with which salt tablets were taken.

Regularity with which clothing was treated with mite repellent (D.B.P.—Di-Butyl-Phthallate). D.B.P. was considered to have been regularly used if it had

been applied on every possible occasion. D.B.P. was supplied in Air Drops, and clothes should have been treated approximately every fortnight.

Regularity with which water was sterilized.

The frequency, distribution and approximate number of leech bites.

The distribution and approximate number of jungle sores (jungle ulcers).

Description of the diet and mention of any departure from the basic ration provided.

Division of the operation into periods of activity, i.e. marching and patrolling, and periods of rest.

In addition, enquiry was made into individual cases of sickness, accidental injuries and wounds caused through bandit activity.

In each case the following were investigated:

Duration of sickness, etc.

Whether evacuation from the jungle proved necessary and if so

Method of evacuation, i.e. walking, stretcher carriage, rafts or small river boats, or helicopter.

The length of time elapsing between the decision to evacuate and the arrival of the patient in hospital.

Troop Commanders were requested to make any personal observations they wished on any relevant topic.

Only those men who were in the jungle for the whole operation were considered.

The information gathered is shown in tabular form and each troop was separately considered. This was done because each troop differed from the others in two ways: (1) In the periods of rest and periods of marching. (2) To some extent in diet. It was felt that these factors might prove to be significant if sufficient investigations on the lines of the present study could be continued.

Before proceeding further it is perhaps advisable to give a rough picture of the conditions in which the operation was carried out, for the benefit of those who have no personal experience of the Malayan Jungle.

The operation in question lasted for 82 days, during which time the Officers and men concerned were in deep jungle away from all roads. Normal hazards comprised undulating country entailing climbing and descending hills of 300–3,000 feet perhaps several times in one day's march, possibly using existing tracks, but often having to cut a new track through jungle which may be sufficiently dense to limit progress to a few hundred yards in one day; in addition, rivers and streams have to be crossed, many of them flowing very fast; a considerable area was swamp country in which leeches are superabundant; and the rainfall also was consistently heavy. These hazards were greatly accentuated by the flooded state of much of the country at the time of the operation. It is obvious that men on active service in such country, carrying full equipment and up to five or six days' rations, performing strenuous duties, often in wet clothes, need to be in the peak of physical condition. The necessity for the Medical Services to be of the highest standard to support such troops must also be apparent.

CLOTHING

This consisted of jungle-green slacks and bush jackets, socks, jungle boots and jungle hat. (The jungle boot is a rubber soled, canvas type boot, lacing up to mid-calf level.)

The majority of men carried a spare pair of slacks and either bush jacket or jersey, the latter being preferred by many since night in the jungle may be extremely cold. One or two spare pairs of socks, and canvas shoes were usually carried.

The night was spent either in individual American Jungle Hammocks slung between trees and including a mosquito net; or in "Bashas," built usually for two men, and constructed with two "Poncho" waterproof capes, and Atap thatching, this latter being made by the men from a common shrub. Comfort was increased in some cases by the use of damaged parachutes, rescued from Air Drops.

SUPPLIES

These came entirely by Air Drops.

MEDICAL CARE AT TROOP AND INDIVIDUAL LEVEL

Each troop included one Medical Orderly who combined these duties with those of the ordinary trooper, carrying also a small amount of medical equipment.

After months of experiment the following approximate list of equipment was found to be the best compromise between what should be taken and the additional weight and bulk which could be carried by the Orderly.

- Tinea paint or Castellani's paint.
- "Foot rot" paint (brilliant green and hydrarg. perchloride).
- Iodine.
- Morphine "Syrettes."
- Chlorodyne.
- Penicillin and distilled water (for injection).
- 2 c.c. syringe and hypodermic needles.
- Suture needles and nylon sutures.
- Tabs. A.P.C.
- Tabs. sulphamezathine.
- Assorted bandages.
- Assorted "Elastoplast" dressings.
- Compressed cotton-wool.
- Absorbent gauze.
- Sewing needle (for removing thorns).

Each Orderly received a period of training in a Field Ambulance, supplemented by a short period in a Military Hospital. None failed to repay the confidence placed in them, and they accomplished much excellent work.

Each man in addition to his First Field Dressing, carried a "J" Medical Pack. This contained, inside a waterproof envelope:

Triangular bandage.
 A canvas case holding:
 One morphia "Syrrette."
 Two aluminium phials containing sulphamezathine.
 One aluminium phial containing tabs. codeine.
 One aluminium phial—empty.
 One aluminium box containing
 Razor blade.
 Styptic pencil.
 Iodine pencil.
 Aperient tablets.
 Two packets of assorted "Elastoplast" dressings.

It was found that the empty phial would contain 30 tablets of "Paludrine." Each man thus carried a month's supply of this drug. It was also found possible to fit into this pack a glass phial containing an equal number of vitamin tablets.

The whole pack was comparable in size to a shell dressing.

INDIVIDUAL TROOP INVESTIGATION I TROOP

Number of men, 14.

Length of operation, 82 days.

Average length of stay in FARELF, 28.8 months.

Period of activity.—First 3 weeks: Fairly easy going after hard march in. Some time spent in waiting for floods to subside.

Next 2 weeks: Continuous marching.

Next 2 weeks: Spent in Base. Considerable patrolling activity but most men had opportunity to rest.

Next 3 weeks: Continuous marching.

Last 10 days: In Squadron Base.

Weight steady
5

Weight gain
1

Weight loss
8

<i>Vitamins</i>		<i>Paludrine</i>		<i>D.B.P.</i>		<i>Salt tablets</i>		<i>Water sterilized</i>	
<i>Reg.</i>	<i>Irreg.</i>	<i>Reg.</i>	<i>Irreg.</i>	<i>Reg.</i>	<i>Irreg.</i>	<i>Reg.</i>	<i>Irreg.</i>	<i>Reg.</i>	<i>Irreg.</i>
9	5	14	0	7	7	4	10	0	14

Skin condition.—On departure: All "Excellent" or "Good."

On return:

				<i>Foot rot</i>		<i>Jungle</i>		
<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>	<i>(fungus)</i>	<i>Impetigo</i>	<i>Sores</i>	<i>T. cruris</i>	<i>T. corporis</i>
1	4	7	2	8	6	3	1	1

Other cases (including those occurring during the operation):

One case of lymphadenopathy left inguinal region and axilla.

One case of otitis externa.

One case of hæmaturia, urgency, right renal pain, pyrexia 130° F. ? acute nephritis.

One case of headache with dizzy spells on sitting up (? vaso-vagal attacks).

One case of N.Y.D. fever. T. 103° F., lasting three days.

One case of septic T. pedis with lymphangitis and lymphadenopathy.

Two cases of stomach "cramps."

One case of "crabs" (pediculosis pubis).

DIET

It may be helpful at this point to describe the contents of the British twenty-four hour pack and supplement in use at the time:

1 pkt. biscuits plain.	1 tin corned beef.
1 pkt. biscuits sweet.	2 pkts. dried milk.
1 tin galantine.	1 pkt. rice.
1 tin jam.	1 tin cheese.
12 boiled sweets.	2 bars chocolate.
1 tin vegetable mayonnaise.	1 tin mixed fruit pudding.
1 pkt. peanuts.	1 pkt. raisins.
1 pkt. lemonade powder.	1 pkt. curry powder.
1 pkt. salt.	1 tin sweetened con. milk.
2 pkts. sugar.	2 pkts. tea.

The "Compo" ration included tinned bacon, steak, steak and kidney pudding, salmon, corned beef, tinned vegetables, margarine, rich fruit cake, fruit pudding, cheese, jam, porridge oats, biscuits, sweets and chocolate, tea, milk, sugar and soap.

This troop subsisted on British twenty-four hour packs and supplement for the entire operation, with the exception of the first few days, when some Gurkha and Malay rations were used; and the last ten days when one day's fresh ration and "Compo" ration were used.

Half the men subsisted on biscuits, cheese and jam for breakfast and tiffin, leaving curried meat and rice for supper.

The remainder had either a tin of galantine or corned beef for breakfast and somewhat smaller meals at night.

Further comments of the diet will be found at the end of this report.

Troop Commander's Comments:

Health on the whole was good, especially in the first part of the operation. There was a marked deterioration in the last three weeks.

Everyone cleaned their teeth daily.

Complete washes were taken as often as possible. The supply of soap was insufficient.

The Medical Orderly was keen and efficient, and made a great difference to the Troop.

The night's sleep obtained in hammocks more than outweighed any disadvantages arising in carrying them.

II TROOP

Number of men, 13.

Length of operation, 82 days.

Average length of stay in FARELF, 21.3 months.

Periods of activity.—First base reached by sea-voyage, followed by one week waiting for floods to subside, followed by four days' marching. Then eight days' marching on five days' rations. One day resting. Eight days' marching on five days' rations. Two days' resting. Nine days' marching on five days' rations. One day resting. Eight days' marching on six days' rations. Six days' resting. Three days' marching. Ten days in squadron base with patrolling only. Four days' marching out.

Weight steady		Weight gain		Weight loss	
6		0		7	
Vitamins	Paludrine	D.B.P.		Salt tablets	Water sterilized
Reg. Irreg.	Reg. Irreg.	Reg.	Irreg.	Reg. Irreg.	Reg. Irreg.
7 6	13 0	5	8	6 7	1 12

Skin Condition.—On departure: All "Excellent" or "Good."

On return:

				Foot rot (fungus)	Impetigo	Jungle Sores	T. cruris	T. corporis
Excellent	Good	Fair	Poor					
2	4	6	1	10	4	2	2	0

Other cases (including those occurring on the operation):

- Two cases of eczema lower legs.
- One case of running sore on lower lip.
- One case nail penetrating sole of foot, with slight wound infection.
- One sprained ankle.
- One anal tear.
- One case of secondary syphilis.
- One paronychia right hallux.
- One carbuncle of wrist.

DIET

First five weeks alternate Malay, Gurkha and British twenty-four hour packs with supplement.

Next five weeks, "Compo" ration was carried. It was distributed, for carrying, on a scale of $\frac{1}{2}$ box per man per six days. For each six days, five days' British and 1 days' Gurkha "Compo" was used.

The meals during this period were roughly as follows:

Breakfast: Porridge or bacon (rarely both), biscuits, jam, chocolate and tea.

Tiffin: Fruit pudding or rich fruit cake, salmon, and tea.

Supper: Corned beef or steak and kidney pudding or stewing steak, rice (usually curried), supplemented with tins of peas and mixed vegetables as the ration allowed, tea.

In the squadron base, British "Compo" was used. From the time that marching began until Squadron Base was reached at end of the operation two drops of fresh rations for one day were obtained.

Further comments on the diet will be found at the end.

Troop Commander's Comments:

General health was good and no one was evacuated. The standard of health fell towards the end of the operation.

Rice was not a good basis for a diet to the exclusion of other accepted commodities as B.O.R.s would not eat sufficient quantities. They liked rice but would only eat small amounts. Malays eat about 3 lb. of rice per day and only in this quantity is a staple diet of rice adequate.

Cigarettes were as important to the troop as its food—from the men's viewpoint.

III TROOP

Number of men, 11.

Length of operation, 82 days.

Average length of stay in the FARELF, 20·7 months.

Periods of activity.—Marched into first base. Next week spent waiting for floods to subside. Then six days' marching. Then two days' resting. Two days spent in base. Fifty days spent in marching, during which each man had probably one day resting. Ten days in Squadron Base. Four days marching out.

Weight steady				Weight gain		Weight loss			
7				2		2			
Vitamins		Paludrine		D.B.P.		Salt tablets		Water sterilized	
Reg.	Irreg.	Reg.	Irreg.	Reg.	Irreg.	Reg.	Irreg.	Reg.	Irreg.
3	8	8	3	8	3	6	5	1	10

Skin Condition.—On departure: All "Excellent" or "Good."

On return:

				Foot rot		Jungle			
Excellent	Good	Fair	Poor	(fungus)	Impetigo	Sores	T. cruris	T. corporis	
1	3	6	1	10	3	1	4	1	

Other cases (including those occurring during the operation):

One phosphorus burn of scalp.

One case of headaches, nausea, and vomiting, possibly of psychogenic origin as the man wished to see the psychiatrist.

Two cases of stomach cramp, one associated with headache.

Two case of Otitis Externa.

One case of mild gastritis.

One case of "Crabs" (pediculosis pubis).

Two cases of N.Y.D. fever.

DIET

Basically British twenty-four hour packs plus supplement. Gurkha and Malay twenty-four hour packs used alternatively for first few weeks.

One week's British "Compo" used in the middle of the operation and one day's fresh ration.

In the final squadron base "Compo" and fresh rations were used.

The majority of this troop had meat of some kind for breakfast as well as biscuits cheese and/or jam.

Tiffin comprised cheese and/or jam, biscuits and often mixed fruit pudding.

Supper was almost invariably curry and rice.

Further comments on diet will be found at the end of this report.

Troop Commander's Comments:

(1) The general health was fair but not as good as in a previous operational area. The skin diseases increased. Stomachs were much more "upset."

(2) B.O.R.s would not eat a sufficient quantity of rice to make the regular use of Malay and Gurkha rations worth while.

(3) "Short Rations" were used over some periods. This was thought to be legitimate only if some definite tangible objective were in view, the attaining of which entailed going on short rations.

(4) Whilst on the march a complete wash was had every three to four days.

(5) Morale was greatly affected by the regular arrival of cigarettes.

COMMENTS AND CONCLUSIONS

The length of time spent in FARELF may well eventually prove to be significant, but no obvious connexion between length of time in the East and susceptibility to skin disease or other sickness is apparent.

Weight steady	Weight gained	Weight loss
18	3	17

These figures do not differ markedly from what might have been expected. Most men on coming into the Army put on weight, and many, unless physically very active, carry slightly more weight than necessary for maximum physical efficiency. This weight is shed rapidly in the jungle and is usually from 3 to 4 lb. It is frequently regained after a few weeks' rest. Those whose weight had remained steady were, in general, men who had reached their optimum weight in previous operations.

Four men lost 10 lb. or more in weight. On examination they appeared normal but all but one had suffered sickness of some kind during the operation. It was felt that they should be observed for some time prior to returning to the jungle.

The three men who gained weight gained only one or two pounds and statistically this must be reckoned as insignificant.

Vitamins.—Regular, 19. Irregular, 19.

No connexion was obvious between the incidence of skin and other disease and the men who did not take vitamin tablets. These tablets can do no harm: they may possibly do good, though there were no facts which would substantiate such an impression. Perhaps observations over a number of similar operations would shed light on the question, especially if one troop were specifically detailed to take vitamin tablets whilst another took none at all over the same period.

Paludrine.—This drug was to all intents and purposes taken regularly and appears to have been effective in the area of the operation. The two men who took paludrine irregularly did not miss their tablets for long periods.

D.B.P. (Mite repellent).—Regular, 20. Irregular, 18.

There were no cases of scrub typhus during the operation, a marked difference from a previous operation. This improvement may partly be due to the fact that the area concerned was not as heavily infested with infected mites as appeared to be the case in one particular part of another State. But great improvement in regular use of D.B.P. was significant and its application was becoming a routine automatically followed. Two men consistently did not treat their clothes, the remaining 16 irregular men treating them from time to time.

Salt Tablets.—Regular, 16. Irregular, 22.

These tablets were used less than was imagined. The regular users rarely took more than 2/day. Approximately 10 men never took salt tablets at all and the remainder one or two only if they felt the need of salt. Some men could not swallow the tablet (which was the most popular way of taking them, along with Paludrine and vitamin tablets) as they vomited. It was known that they should be dissolved in water but this was not popular, partly because remarkably little water quæ water was drunk, most fluid being taken in the form of the sweetest tea possible. Three men, all of whom sweated freely, took 6–12 tablets per day.

It is felt that not enough salt was taken and very possibly the cases of "Stomach Cramp" were due to salt deficiency.

Propaganda on this point would be advisable, a training film might even be considered, for it is a subject which could easily be made interesting.

Sterilizing of Water.—Regular, 2. Irregular, 36.

This was a difficult problem. It must be accepted as a premise that the only safe water is chlorinated water; and that waterborne disease is prevalent in Malaya. Other factors should also be remembered: Many of the hill streams are exceptionally pure; much of the water drunk was in the form of tea for which the water had been boiled; it is difficult when marching through a stream not to dip a hand in and drink; Troop Commanders realized the dangers of this impure water as did the great majority of men. Practically everyone sterilized water when camping on big rivers or slow running water, and when camping in previously occupied ladangs. The vital necessity of sterilizing water in such locations could not be overstressed.

Skin Condition.—To a reader not acquainted with the jungle personally and who will therefore not fully appreciate the length of this operation, etc., it is fair to point out that although the figures for skin disease may appear high—and most certainly, must be carefully noted—the impression of the writer is that the incidence of skin disease in the Regiment concerned compared not unfavourably with the incidence in other Units who do not operate in the same manner. The jungle is in many ways a healthy place, for man and animals are concerned in the transmission of much disease, and troops in deep jungle are in the unique position of spending time in areas which do not support a steady—or any—population and so are less likely to become victims of many diseases, apart from those due to wear and tear, and those affecting the skin. In this latter connexion it may be mentioned that the crutch and armpits are subjected to continual irritation by sweaty, damp clothes, thus tending to produce good soil for skin disease. More frequent thorough dhobying might well make the soil less fertile.

<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
4	11	19	4

Of 38 men, under half had skin which stood up to eighty-two days in the jungle.

It is noteworthy that much of this skin trouble showed itself in the last three weeks of the operation. During part of this time all men were together in a captured bandit camp. The hygiene of this camp left something to be desired and may have been partly responsible for the skin disease. An M.O. should be at hand whenever a Squadron Base is built.

The cases of fungus infection of the feet were most common. They are important because, to state the obvious, feet are marched on all the time.

Slightly over 25 per cent had tinea in the crutch or on the body. For the length of stay in the jungle, this did not appear to be excessive.

34 per cent had impetigo. This was mostly confined to the jungle boot area and in many cases was severe. The jungle boot area comprised that area of the leg distal to the mid-calf region.

The jungle boot seemed an unsatisfactory article for which no better substitute could be found. Pieces of grit and gravel get inside the boot and subject the skin to continual irritation. The combination of wet feet, sweaty feet, and skin being continually traumatized and irritated must be considered to provide favourable conditions for the development of skin disease.

From careful examination of the men involved in this particular operation and from previous impressions, it is felt very strongly that two months in the jungle at a time is the longest practical period for men to remain at a high level of operational efficiency. After this time not only does their health deteriorate but it is going to take much longer for them to return to an operational level of fitness. In this connexion it is also felt that after two months in the jungle, one month (including seven days' leave) is necessary for full recuperation and refitting. There are many factors, subtle perhaps, and not present in every case, which do not manifest themselves as a pyrexia or a skin lesion or as a specific disease, but which do so strongly influence the efficiency of a man that to return him to the jungle quickly would in the end prejudice his health and consequently the success of the operation. The amount of skin disease in the troops in question would have made it unwise to commit them to the jungle again quickly if further rest and treatment could have been obtained.

It is important to note that the men examined were almost all in excellent spirits. A few of them preferred the jungle to R.H.Q. Even so, the human frame is sufficiently like a vehicle to need periodic maintenance before it breaks down. Thus treated, it gives best service.

From a practical point of view, it should be remarked that if men returned to the jungle soon after a period of leave, any venereal disease which may have been contracted would manifest itself at an extremely inconvenient time.

Other Sicknesses.—Nothing remarkable appears from consideration of these cases except perhaps the small amount of systemic illness compared to the cases of skin disease.

Practically all of the septic lesions developed in the last two weeks of the operation.

Diet.—The British twenty-four hour pack was the staple diet. On the whole it was approved, but naturally became monotonous. Milk powder was thrown away by 95 per cent of the men; other items thrown away were galantine and mixed fruit pudding. A very few threw other items away. The majority would have welcomed the substitution of tinned fish for galantine, and the addition of more milk, tea and sugar which, with cigarettes, seemed the most important items from the point of view of morale.

Only 3 people did not like rice, but only 2 said they could eat more than they got; and the evidence does suggest that the B.O.R. though he likes rice, is not prepared to accept it in quantities eaten by the native population.

The troop which was original enough to carry "Compo" expressed universal approval of the idea. By a majority of 8:5, it was found to be heavier to carry, but that it was a better diet for marching on than twenty-four hour packs was unanimously agreed. This idea might be extended with advantage.

Fresh rations were missed surprisingly little. Perhaps this was due to the quality of the rations, which was said to be poor. The meat did not respond well to cooking. The vegetables (mostly cabbage) were not fresh and often not edible. The men felt that more imagination could be used over the dropping of fresh rations. The bread—much looked forward to by many—was stale and uninviting.

"J" Pack.—This pack was used often and praised highly. It was felt that the packets of "Elastoplasts" could with advantage be replaced every fortnight since the small supply was quickly used, and that the styptic pencil and aperient tablets should be removed from the pack and an additional iodine pencil substituted which could also be replaced when necessary. It was very discouraging for men who were taking care of their bodies to find that they could not immediately get the required supplies. The Medical Orderly could not carry unlimited quantities.

Evacuation of Sick and Wounded.—Evacuation of casualties from the jungle can be exceptionally difficult and the use of helicopters in Malaya, even in minute numbers, has amply demonstrated the advantages of this machine. The clearing of a suitable landing area in deep jungle is not a simple matter, but it has been shown to be a practical proposition in country where stretcher carriage is perhaps as difficult as it can be.

In the operation under consideration, evacuation by river in certain cases was possible. In other cases, when a helicopter was deemed vital, the landing strips prepared within twenty-four hours were in all instances found to be satisfactory.

The information included in this report was obtained in an attempt to discover the effects which the jungle had upon groups of men. Remarkable results could not be expected, but it was felt that there was a place for an attempted scientific investigation into the problem indicated above. It was further felt that such results as were obtained, over a period, would be of benefit not only to one Unit, but also to others engaged on similar work now and in the future: and to the R.A.M.C., whose responsibility it is not only to look after the sick but also to learn about the conditions which produce sickness in Army personnel.

SUMMARY

A report on an eighty-two day operation has been made.

Some factors which influence health in such operations have been considered and the Medical facilities available to small bodies of men and individuals in deep jungle have been mentioned.

Comments have been made on the operation from a Medical standpoint, and some tentative conclusions drawn.

I should like to record my thanks to Lieut-Colonel J. M. Calvert *D.S.O.*, *R.E.*, for circularizing the report in its original form; to Colonel L. R. H. Keatinge, *O.B.E.*, *D.D.A.H.*, *FARELF*, for his encouragement; and to Brigadier C. W. Greenway, *D.M.S.*, *FARELF*, for permission to publish the amended version.

FEARS, FITS AND FAINTS

BY

Captain J. P. P. BRADSHAW, M.D., M.R.C.P.

Royal Army Medical Corps (N.S.L.)

DURING the winter of 1950-51 one medical officer saw between 80 and 90 men on his morning sick parade; and in addition performed routine PULHEEMS classifications, vaccinations and inoculations on fresh intakes. Therefore it was not unexpected to find patients referred to hospital with little attempt to differentiate between the functional and the organic: "Blackouts" formed a large proportion of these cases and it appears that unit medical officers regarded it as the duty of a medical specialist to exclude organic disease.

The following paper has been written, not as an academic survey of the causes of fainting, but as a practical guide to assist diagnosis.

It should be realized that well over 90 per cent of these cases fail to reveal an organic basis for their condition. There is, however, a very real danger arising from the admission of functional cases to a General Hospital. In the sanctity of the medical ward the mild anxiety state has his fears confirmed (even the doctors think that he is seriously ill); the malingerer finds peace at last and this perpetuates his activities, whilst the hysteric revels in the kindness of the Q.A.R.A.N.C. officers and perfects his dramatic skill before an appreciative audience of inexperienced nursing orderlies. Instead of returning to duty cured, after a series of episodes, in which the guardroom or the detention ward has played a considerable role, he will become a confirmed and convinced neurotic, to be discharged from the Service category S 8 (Eight) and continue his wretched existence to the detriment of relatives and civilian practitioners alike.

The task of the medical officer is twofold:

- (i) To exclude organic disease.
- (ii) To effect the correct disposal.

To achieve this end, I would emphasize the importance of the history. Too often detailed neurological findings are recorded that are totally irrelevant. The time expended would have been better employed in listening to the story of the patient.

It is not proposed to give a complete summary of the clinical features observed in the better-known syndromes of organic disease, but to stress certain important points.

(A) ORGANIC CAUSES

(1) *Febrile Disorders*.—Any febrile disorder where malaise is present may be associated with faints.

(2) *Epilepsy and Allied States*.—True epileptics are uncommon in the Services since the majority have been excluded on entry by Medical Boards. Some, however, will be encountered that will fall into the following categories.

- (i) Soldiers who have deliberately concealed their previous history with a view to obtaining a regular engagement.
- (ii) Those with attacks that commence for the first time after enlistment.
- (iii) Those whose previous fits have been unrecognized as epileptiform.

A past history of fits that have diminished or become completely controlled after taking tablets is very suggestive, and similar symptoms amongst siblings may assist in the diagnosis.

Major epilepsy, when the attack is observed, presents no diagnostic problem. What is less appreciated is that, unless seen, the diagnosis relies entirely upon the history of a reliable witness coupled with testimony of the patient. Neurological examination will rarely assist and in the Medical Centre this will of necessity be incomplete.

Firstly the patient may notice an aura (about one-fifth of cases), warning him of the probable onset of a fit. Often the only helpful information he can add is his state on recovering consciousness. He may complain of a headache, drowsiness, a sore tongue or notice dampness of his clothing as a result of incontinence. A combination of two or more of these symptoms is wellnigh diagnostic of epilepsy.

From the observer of the fit a statement may reveal such information as, deviation of the head or eyes, a tonic phase followed by clonic movements, stertorous breathing, or the presence of blood-stained froth blown from the nose or mouth. The colour of the skin is initially pale but as the tonic phase develops becomes suffused and grinding of the teeth is common. Emotional excitation prior to the attack, or a rapid pulse-rate favours diagnosis of a different nature.

The real difficulty lies in recognizing the minor fit. These may be so mild as to pass the notice of any but the trained observer, but the repetitive nature of the seizures should enable the medical officer himself to have ample opportunity for seeing one. When they are infrequent they are usually associated with the major attacks. The soldier may pause in the middle of a sentence, if it occurs during speech, he may resume after an interval of seconds where he left off, or he may ask to be reminded of what he was saying. Similarly, if listening, his attention will appear to wander and he may stare in a vacant manner. In more severe attacks objects are dropped or the head will fall on to the chest wall. Actual falling is uncommon, repeated falling incompatible with a diagnosis of minor epilepsy.

Closely allied to this condition are the rare disorders of narcolepsy (an

irresistible desire for sleep), and catalepsy (the sudden access of weakness often precipitated by emotion). I once saw an officer cadet, who had been returned to his unit for repeatedly falling asleep in his Commanding Officer's lectures, who was a narcoleptic.

A variant of the major seizure is the Jacksonian fit where convulsions start focally, slowly spread to adjacent cortical areas, and in whom consciousness is retained till the attack is fully developed.

Occasionally migraine superficially resembles the Jacksonian or focal fit. In these cases, however, the motor phenomena that occurs with migraine take longer to develop and they are followed by the classical features of headache, nausea and visual abnormalities. These latter include fortification spectra, central scotomata, and hemianopias.

(3) *Hypoglycemia*.—This is characterized by attacks of sweating, blurred vision, hunger with abdominal pain, pallor and "Fainting." If severe, consciousness may be lost or epileptiform seizures occur. These symptoms commence about four hours after food and are precipitated to a greater degree by exercise. Any readily digestible source of sugar will relieve the condition which is often due to an excessive liberation of insulin in response to carbohydrate absorption. If this mechanism is responsible a low carbohydrate high protein diet will minimize attacks.

(4) *Aural Vertigo*.—Aural vertigo may be associated with middle-ear disease or with the idiopathic variety known as Ménière's syndrome. There is a progressive onset of deafness, often unilateral, together with the sudden access of tinnitus, vertigo and falling to the affected side.

(5) *Subarachnoid Hæmorrhage*.—When severe headache or unconsciousness are present this condition should not be forgotten. Diagnosis depends on the history of the sudden onset of intractable headache that is unrelated to anything, often occurring during or just after exertion. The signs are variable, but neck stiffness is invariably present. Signs of a raised intracranial pressure may include papilloedema, projectile vomiting, external rectus palsy and bradycardia. In addition there can be evidence of long tract involvement seen in an extensor plantar response, or a positive Kernig's sign.

(6) *Anæmia*.—Anæmia of marked severity is frequently associated with "Blackouts." It should be recognized by pallor of the mucous membrane, brittle nails, glossitis and tachycardia.

(7) *Cardiac Conditions*.—The rapid onset of palpitations, throbbing of the throat with loss of consciousness or faintness, with an equally rapid cessation of symptoms should suggest a possible paroxysmal tachycardia.

Examination of the fundi, urine and blood pressure may well save a humiliation, for encephalopathy could otherwise be diagnosed as a case of hysteria. Lastly in the older age-group, dyspnœa of nocturnal type, cardiac enlargement or a raised diastolic blood pressure in the absence of systolic hypertension should all point to the possibility of a recent painless coronary thrombosis.

B. FUNCTIONAL CAUSES

(1) *The Simple Faint*.—The indisputable fact remains true that some people have a tendency to faint and others have not. A recent history will often reveal evidence of previous attacks precipitated by such factors as fatigue, emotional upset, exposure to heat or the wearing of unsuitable clothing. Those who read this may show some irritation that I should emphasize the obvious, but I am continually seeing soldiers who appear in the Out-patient Department with a "B 256A" asking me to exclude epilepsy. One case I remember was sent 20 miles by ambulance as an acute medical emergency. In a soldier liable to faint often there are two or more factors operating at the same time. A good example of this is the man who misses his breakfast and has run to the parade ground on an empty stomach. He arrives late, stands to attention and is checked by the N.C.O. in charge. Here the factors of hypoglycæmia, fatigue and emotional disturbance are not unlikely to produce a "Blackout," in a potential fainter on a hot summer's day.

(2) *Postural Faints*.—Closely allied to the simple faint is that of the man who undergoes a blackout on rapidly changing from the horizontal to the vertical position. These soldiers are often of asthenic build and are greatly improved by a course of physical training. Milder cases need only to be instructed not to rise from the lying position too rapidly, or to tighten their belt before doing so.

(3) *The Effort Syndrome*.—All medical officers must be familiar with the story of chronic ill-health that is rudely dismissed by an intake examination which passes the individual concerned as FE. Often the man is the product of doting parents and has led a protected life unused to physical exertion, and is unable to perform his basic training. Less often they follow a febrile illness when insufficient time has been allotted for convalescence. They may, I regret to say, be the harvest sown years before by doctors who diagnosed severe heart disease on an isolated systolic murmur. Whatever the cause, they feel that they are not as other men are, and lack confidence in themselves.

Symptoms may include shortness of breath on exertion, palpitations, pains under the left breast, generalized weakness, early fatigability, and faints. In the past, they may tell you, they have had pleurisy, that was cured in a few days (no doubt a rhonchus was mistaken for a pleural rub), gastritis, anæmia or a weak heart. They may never be allowed to play active games, and not unnaturally are unable to cope with severe conditions. After an examination they should be told in no uncertain terms that, whatever they suffered from in the past, they may now be given a clean bill of health. It should be explained that their symptoms are due to lack of training and it is only to be expected that they will tire more readily than their companions after a hitherto vegetable like existence. The cure lies in putting them on a conditioning course. This will increase physical development and confidence. The man will discover that before many weeks are passed he can march fifteen miles or go over a battle course. He will realize that he is unlike the Pharisee and just an ordinary mortal.

(4) *The Anxiety State.*—

"Come listen, my men, while I tell you again
The five unmistakable marks
by which you may know, wherever you go,
the warranted, genuine snarks". . . .

(*The Hunting of the Snark*, by Lewis Carroll)

Snarks, or anxiety states, have:

- (i) Coarse tremor of the outstretched hands.
- (ii) Frequent blinking and facial grimacing.
- (iii) Restlessness and fidgeting.
- (iv) Cold, clammy hands.
- (v) Exaggerated deep reflexes and hypertonia.

To these might be added that they will rarely look you directly in the face and often have epidermophytosis, onychogryphosis and dirty feet.

Symptoms include insomnia, anorexia, nervousness and irritability. headaches, diarrhoea, palpitations, gastric pain (especially under the left costal region, associated with flatulence). The faint itself is usually vague and may take bizarre forms, unrelated to structural or functional principles. Diagnosis has, in my experience, always been easy, but the cause always more difficult to determine. A patient will sit sometimes with a fixed grin, disclaiming any worries and it requires patience and perseverance to get to the bottom of his story. A background of an unhappy home with previous nervous debility of the patient or his relatives may clearly indicate an inadequate personality.

Broadly speaking, anxiety is *financial, social or sexual*. Direct questioning may be the only weapon available when pressed for time in a busy Medical Centre or Out-patient Department, but I always try to avoid this. Some of the more usual causes may include:

Social: Trouble in the unit, maladaptation to Service life. An unwelcome posting. Lack of married quarters. Victimization or bullying. Sick relatives. Disinterest in, or unsuitability of, work.

Medical officers can add many more but it is surprising how simple it is to deal with these situations. I have found O.C.s most helpful and sympathetic, and ever ready to assist in remedies such as cross-postings, a change of occupation, compassionate leave, or even compassionate postings.

Financial: Poverty in the home may be aggravated by the patient's conscription. Welfare authorities should be informed, and, as far as possible, assistance rendered. Severe hardship in a few exceptional cases may justify posting near the home or even release from the Service.

Sexual: Incompatibility between husband and wife, unfaithfulness, "jilting" by a girl friend or the unwelcome fruits of promiscuity may each or severally be responsible. Simple advice, if necessary, to both parties in the case of married partners, can do much towards obtaining a solution.

Action must therefore be:

- (i) Hearing the patient's story.
- (ii) Examination and diagnosis.
- (iii) Further questioning if necessary.
- (iv) Reassurance that there is no organic disease.
- (v) Action directed to removing the cause and explaining the causation of symptoms.
- (vi) Sedation with a careful explanation as to its purpose.

Most of this group can be helped. Psychiatrists are overworked and should not be burdened with every minor anxiety state. Often the medical officer will be better able to help in the unit than a psychiatrist who has only one encounter with the patient. One source of difficulty is that of a man who has been posted to a combat zone and is simply frightened. The majority of these cases that I have met have led protected lives and the anxiety they show has been fostered by their parents. To them the prospect of active service is the equivalent of a death sentence. The medical officer has to decide whether they are likely to settle down in their unit once they realize that the prospect before them is not one-hundredth part as bad as they feared or whether they will be able to fulfil their duties once these fears have been lessened. If it is his opinion that their condition is temporary and that future breakdown is improbable then these soldiers must be kept on normal duties and out of hospital. There remain, however, a proportion who will be a liability both to themselves and to their units if allowed to proceed. Here it will be the duty of the medical officer to refer the case to a psychiatrist. In doing so he may have to face severe criticism to the effect that he is shielding a malingerer, but there can be no justification for sending these cases on the draft for Breakdown in the Field is an infectious disease.

(5) *Anxiety Hysteric.*—

"For although common Snarks do no manner of harm,
Yet I feel it my duty to say
Some are 'Boojums'—the Bellman broke off in alarm,
For the Baker had fainted away."

Anxiety hysterics have gone one stage further than the anxiety states and finding that they are no longer able to cope with their troubles seek flight in a more dramatic form of ill-health. The simple hysteric reacts by loss of function, the anxiety hysteric (Boojum) by violent convulsions, quite unlike any epileptic phenomena. The body is held stiffly and passive movements are resisted. Violent struggling drags orderlies across the floor, judiciously placed kicks upset medical equipment unwisely left upon the bed. The head is thrown from side to side, shoulders and limbs twitching or in slow vague gestures. The hands may be held over the face as if to signify that the afflicted has an unbearable headache. Breathing is noisy yet not stertorous, speech may be whispered, moaning, slurred, or mutism may be feigned. The face is flushed,

the skin hot and covered in profuse perspiration; the eyes are tightly closed, or rolled from side to side. The first thing to do is to cut short the attack. Various homely methods such as cold water, face slapping or pressure on the globes have been recommended but these are incompatible with professional dignity and often fail. A bottle of 880 ammonia held under the nose is invaluable. Great firmness must be exercised and on no account must the medical officer allow the patient to be in any doubt as to his sincerity, nor must he be admitted to hospital. The general lines of treatment recommended under anxiety state can then be adopted at the unit.

(6) *Major Psychosis*.—It is beyond my powers to give advice on the diagnostic problem, but if considered under the headings of:

- (i) What does the patient do?
- (ii) What does he say?
- (iii) What does he think?

one or more will be so abnormal as to suggest the diagnosis. To give but a few examples: One patient was found at 0300 hours in the annex reading his Bible and communing with God. Another refused to speak to anyone and lay in bed immobile, whilst a third thought that the Russians were going to torture his fiancée unless he committed suicide. All suspected psychoses must be rapidly sent for expert psychiatric attention with a reliable escort.

(7) *The Malingerer*.—I have seen very few that did not have an underlying anxiety. Two were recruits who were trying to obtain release from National Service, but they rapidly responded when the state of the military laws regarding this malady were explained, and no further action was necessary.

I have tried to show that minor psychiatry is the duty of every medical officer. Too often doctors are interested only in the physical signs of obscure syndromes or advanced organic diseases. These are dull, for treatment is rarely availing in arresting the course of the illness. "Interesting" diseases are seldom interesting to the patient, but the diagnosis of blackouts and their treatment taxes the diagnostic skill no less severely. The treatment is scientific and eminently rewarding; correctly applied it will prevent chronic invalidism and restore a useful purpose to thousands of young men at present condemned to neurotism and misery.

A SUGGESTED SCHEME

- (1) To listen to the story of the attack in brief.
- (2) To look for signs of anxiety or hysteria.
 - (i) If present, determine cause and treat as recommended.
 - (ii) If absent, take a more detailed history with a view to excluding postural faints, effort syndrome, simple faints, aural vertigo, hypoglycæmia and epilepsy.

- (3) Examine to exclude organic disease simply. This should entail:
- (i) Temperature.
 - (ii) Auroscopy.
 - (iii) Testing for neck stiffness and Kernig's sign.
 - (iv) Take the blood pressure.
 - (v) Examining mucous membranes, tongue and nails for evidence of anæmia.
 - (vi) Testing the urine for sugar and protein.
- (4) If the history suggests epilepsy:
- (i) Refer to next available Out-patients with "fits" form completed. If appointment is delayed protect the patient from injury by obvious precautions such as prohibiting driving, bathing, etc.
 - (ii) If attacks are severe or repetitive admit to hospital forthwith after giving soluble phenobarbitone gr. $1\frac{1}{2}$ intramuscularly.
- (5) If history suggests a psychosis:
- (i) Arrange for medical specialist's opinion prior to referring case to a psychiatrist.
 - (ii) If dangerous, place in protective custody pending such an arrangement.
-

THE RECEPTION AND TRAINING OF Z RESERVISTS 1951

BY

Lieut.-Colonel G. B. HEUGH*Royal Army Medical Corps***Lieut.-Colonel T. H. WILSON, O.B.E., T.D.***Royal Army Medical Corps (T.A.)*

AND

Major W. F. de C. VEALE, T.D.*Royal Army Medical Corps (T.A.)*

WITH A FOOTNOTE BY

Colonel R. H. ROBINSON, T.D.*A.D.M.S. Home Counties District*

THE following notes have been compiled at the suggestion of Col. R. H. Robinson, T.D., A.D.M.S. Home Counties District. They represent the ideas and views of the units concerned only.

The notes are divided into two parts, the first part dealing with details of reception and dispersal, as seen by the Reception Unit, 15 Field Ambulance. The second part provides the viewpoint of the Training Units, in this case 4 (Eastern) Casualty Clearing Station and 24 (Eastern) Field Dressing Station, and is, of course, of a more general nature, dealing with training, morale, etc.

PART I

A RECEPTION UNIT (FIELD AMBULANCE, REGULAR)

Reception Arrangements

The arrangements made for the reception of Z Reservists were briefly as follows:

"Railway Reception Committee."—This consisted of a corporal, a private and the legend "4 C.C.S. 24 F.D.S. Z. Report here." This proved quite adequate, and with a "committee" at both Shorncliffe and Folkestone stations, all reservists were collected in neat bundles and deposited at the door of the Reception Centre in Rishborough Barracks with no loss of time.

Arrival Check.—On arrival at the Reception Centre each reservist's name was checked against the nominal roll of his unit, the time of his arrival was noted and he was presented with a "Reception Form." Two men were employed on this duty.

Buffet.—As the majority had long distances to come, a meal of some sort, even if only the traditional “char and wad,” was obviously a necessary preliminary to any reception procedure. A hot meal was served between 1230 hours and 1430 hours to all who had arrived by that time, and a cold meal was served between 1700 and 2000 hours. For the rest of the time between 0900 hours and 2200 hours, tea, cakes and buns were served to all arrivals. The buffet kept a Serjeant and 6 men fully occupied during the peak period.

Payment of Travelling Claims.—This duty was carried out by the Paying Officer of 4 C.C.S. for men of his unit, 24 F.D.S. having arranged to pay their reservists later.

Signature of Q & R Card.—This also was a T.A. unit commitment. Each reservist's particulars were checked, changes of addresses and next of kin noted, and his signature on the card obtained.

Medical Examination.—All reservists had been medically examined before arrival, so all that was necessary was an F.F.I. inspection although a watch was also kept for any obvious defects or infirmities.

Left Luggage.—Before going on to the Quartermaster's Store reservists were advised to deposit their suitcases in a “Left Luggage Office” in order to free their hands for coming showers of clothing and equipment.

Q.M. Stores.—The Q.M., R.Q.M.S., a Serjeant and 8 men were kept busy from 1030 hours to 2100 hours in issuing clothing and equipment. A “continuous belt” system was used, personal clothing and equipment, e.g. caps, shirts, gaiters, etc., being issued from a long table down one side of the room, blouses and trousers, B.D., boots and greatcoat being fitted in a “fitting room” at the end, and finally down the other side of the room were issued items of webbing, water bottles, etc. A form in lieu of H. 1157 was signed by the reservist as he left the store (App. B).

Bus waiting room.—The men returned from the Q.M. Stores to the left luggage office, drew out their luggage and waited in the next room for transport to take them out of the Camp. They were despatched when the N.C.O. i/c left luggage considered that there was a reasonable lorry load.

Notes on Reception

Morale.—All reservists were in extraordinary good spirits on arrival, and the whole procedure of reception was a cheerful and friendly affair. Not a grumble was heard all day.

Health.—There were no unfit men amongst them, the only notes made by the Medical officer being one hallux valgus, one bunion, and two “athlete's foot.” All were clean.

Times of Arrival.—The most important point to record is that every man arrived on his call-up day between the hours of 9.30 a.m. and 9.30 p.m. The first arrivals were one from Manchester and one from Stoke-on-Trent both of whom arrived at 9.30 a.m. The last arrival, at 9.30 p.m. was, as anticipated.

the one living closest, from Hythe. The peak period was between 2 and 6 p.m., 62 per cent arriving during that time, leaving only 14 per cent to arrive after 6 p.m.

Rate of Flow.—The original intention had been to deal with the reservists in parties of ten, i.e. ten at a time to be passed on from Pay and Records to Medical Centre to Q.M. Dept. It was, however, soon found that it was more convenient and just as easy to keep them moving in twos and threes. The buffet also helped to keep an even flow going, by acting as a buffer between arrival and the start of reception procedure.

Forms.—Only three forms were introduced. One was the Reception Form (Appendix A) which proved most valuable as a check that every man had completed each step of the procedure. The absence of a signature showed at once that the reservist had not been dealt with by the officer or N.C.O. in charge of that particular step. One had doubts when instituting the form whether many of them would get lost or destroyed, but in fact only one was lost during the day.

The second form (Appendix B) was for the use of the medical officer and was intended to cover men unfit to march, wear boots, etc., and if necessary men unfit to undergo training at all. It was only used twice: one unfit to wear boots and one unfit to march.

The other was a *pro forma* in lieu of A.F. H. 1157 (Appendix C). This allowed for the reservist's signature to items received and his signature to deficiencies on completion of training. In this way it acted as a clearance certificate from the Quartermaster to the Paying Officer.

Q.M. Department.—This was obviously the vital part of the reception procedure and therefore the one which required most careful thought and organization. The time spent in preparation was well rewarded by the smoothness with which clothing and kitting proceeded.

The following points were noted:

Battledress.—There had been considerable speculation as to the value of the Size Rolls submitted, and the general opinion was that they would not be much help. Arrangements were therefore made for the individual fitting of every man, the size roll to be used as a guide to first "try-on." Each man's size roll was accordingly marked with the size of blouse and trousers required for the measurements given, and the size roll was attached to his "H. 1157." On entering the fitting room, if his build conformed reasonably closely to the size given, he was given that size to try on. If it did not fit or if the measurements were obviously wrong, he was given a more suitable size until well fitted. The following figures show that the use of size rolls was justified, but that individual fitting was nevertheless essential: 60 per cent were fitted according to their size rolls, 30 per cent were one or two sizes out in either direction, and in 10 per cent only the size roll was valueless. The special size roll demanded on A.F. H. 1119 gave an exact fit, as could be expected.

Tailoring.—Arrangements had been made for a tailor to be available during reception, but his services were required only once. This was to sew chevrons and crowns on the blouse of a Staff-Serjeant who had apparently swollen considerably since he last measured himself. He had to wait twenty minutes only before his blouse was returned, complete in all its glory. A factor which helped greatly in saving time over the sewing on of chevrons was that, between the time of indenting and the actual reception day, quite a number of reservists had been deleted from the nominal roll. This allowed about 10 per cent reserve for sizing, and, in the case of N.C.O.s, chevrons were affixed to a few of the extra battledresses to allow for faulty size rolls, a procedure which was obviously justified by the fact that only one suit required tailoring.

Boots.—All boots were fitted individually, and it was considered worth while to ensure that each man first put on the socks he had been issued with, as these were, of course, much thicker than the average civilian socks. Even so a matter of 6 per cent returned next day to change their boots for a larger size, having mistaken an overtight fit for a snug one.

Berets.—At least 30 per cent of reservists underestimated their cap size. This was due in some cases to civilian hair-cuts or lack of them, and in others to the fact that the modern beret with its leather band does not give to the same extent as the cloth beret in use at the time of the reservists' discharge.

General.—On the whole the Q.M. Stores was a very happy little place. The mere sight of stacks of clothing and webbing was sufficient to rouse memories of previous visits to the quartermaster, and the old time-worn jokes, some rude and some ruder, were all revived.

The general opinion of the reservists was that the standard of clothing was higher than they had had when in the Service, and that it was much better than they had expected.

More than one commented on the speed (an average of fifteen minutes, including fitting) with which he had been issued with a complete set of clothing and equipment.

Dispersal Arrangements

It was not considered practical to disperse the reservists on Saturday, the fifteenth day of their call-up, for two reasons. Firstly the Territorial Unit itself was dispersing on that day, and secondly the Reception Unit was receiving the next party of reservists on the same day. Dispersal therefore took place on Friday, the fourteenth day.

Compared with reception, the dispersal of reservists was a comparatively simple matter, but again showed that careful preparation was half the battle. The system used was as follows:

At Camp.—After breakfast in camp, the reservists were issued with a haversack ration, and their individual barrack deficiencies were checked and noted by the T.A. unit's Q.M., who then notified the paying officer of individual charges.

Arrival.—The men were ferried in from camp by lorries, and on arrival deposited their suitcases in the "Left luggage office" before going to the Q.M. Dept. to hand in their kit.

Q.M. Department.—A long table was set down each side of the room, with a row of empty crates behind each to receive the kit. One side was used for checking and for storing clothing, the other side for sorting out and stacking equipment. The R.Q.M.S. and two senior serjeants acted as checkers, three men were employed in assisting the reservists to lay out their kit for checking, and another three were engaged in sorting out equipment ready for issue to the reservists due the next day. A clerk issued each reservist as he arrived with his "1157," on which the checkers noted deficiencies. These were then taken to the Quartermaster who entered on them the cost of the missing articles, signed them and handed them back to the reservists for presentation to their paying officer. At the same time the Quartermaster entered the necessary details on A.F. P. 1954 in duplicate, one copy being retained, and the other passed to the paying officer to support his imprest account.

Pay.—The paying officers had previously prepared each man's account, having added his pay, allowances, and bounty, and having subtracted earlier that morning the barrack deficiencies. As each man arrived at the pay table he presented his "1157," the paying officers subtracted the cost of deficiencies if any, and paid him the remainder. There were very few deficiencies, 21 per cent of the men being deficient of articles of an average cost of 2s 2d., the total deficiencies from both units together amounting to only £3 5s. 3d.

Departure.—Having received their pay, the reservists withdrew their luggage, boarded the waiting lorries, and were driven to the railway station.

The first of the 144 reservists were brought to the reception unit at 0815 hours, and the last to depart for the station left at 1130 hours, giving an average of $1\frac{1}{3}$ minutes per man.

General.—All the men looked remarkably fit, and they were all very happy. The amount of deficiencies, as noted above, was remarkably low, and no man objected to paying for the missing articles.

PART II

A TRAINING UNIT (CASUALTY CLEARING STATION, T.A.)

The 4 (Eastern) Casualty Clearing Station, R.A.M.C. (T.A.), went for their Annual Training in Camp at Dibgate Plain, Shorncliffe, from 30th June to 14th July 1951.

It was known that "Z" Reservists were to be attached to the unit for fifteen days' training.

The unit has a Volunteer strength of 6 Officers of whom 4 are M.O.s, 1 Q.M. and 1 Non-Medical Company Officer; 3 Nursing Officers and 24 Other Ranks. In addition there are 12 N.S. men.

Previous to camp, over a period of several months, the permanent staff have had a quantity of paper work associated with the posting of 109 "Z" men.

This unit had then to forward all their particulars to the D.D.M.S. Eastern Command and A.D.M.S. Home Counties District. There were many cancellations, in fact 23 out of a total of 109, or twenty-one per cent.

The method adopted for receiving Z men was that the 15 Field Ambulance at Shorncliffe should receive the Z men, feed them on arrival, fit them out completely from size rolls supplied by this unit, house them if necessary for a night and then send them to this unit for training. This part was admirably carried out and I have nothing but praise for the work done by 15 Field Ambulance.

The men were coming from as far afield as Aberdeen and very few from local counties. They all arrived on time and there were no absentees.

All Z men were in excellent spirits and each decided that as training had to be done they would make the most of it.

All except 3 had had their Pulheems before arrival. A Foot and Face Inspection was carried out. There was no sickness or disability—one man had permission to wear shoes on account of foot deformity. Some hair was a little long, but this was not usual.

First parade on first day of training was inspected by myself. The turn out was remarkable for the correctness of the fitting of battledress. The only point worth noting was the poor quality of the webbing and the buckles. The webbing was blanched, but buckles were impossible to deal with to make them smart. After this all started their training in seriousness.

This unit not only had to train the Z men in general duties of the R.A.M.C. in the field and in stationary units, but had to man a 50-bedded hospital and to receive real casualties.

Z men were divided into 3 companies each with 2 Z Officers over them and Volunteer T.A. Officers and N.C.O.s as advisers. The Volunteer M.O.s and Coy. Officer were there to supervise, lecture and act as specialists, as well as carrying on the general duties of the unit.

Each Coy. in their turn had four days in the 50-bedded hospital, training and nursing. After this each Coy. carried on certain R.A.M.C. training, including squad drill, stretcher drill and field exercise.

The most popular items were those associated with field work. More of this could be done another year, if sick did not have to be treated as well.

The "specialists" amongst the Other Ranks were given the facilities to work in their own line. The Dental Officer (Z Officer) and his men (all Z) put up a Dental Centre in a tent and worked well with the training equipment available. The laboratory technician was sent to the Shorncliffe Military Hospital for a short time only. There was no work for him to do in the field—anyway he is already trained at his job in civil life. The X-ray staff had no field equipment although this was asked for. They, too, visited the Military Hospital.

The cooks were a good set and worked voluntarily overtime. Their work was good and our own Volunteer Sjt. cook was impressed with them.

R.A.S.C staff were up to a good level of experience. They were used for the transport section mainly—though they helped with the general work of the unit.

The presence of Z men definitely stimulated the unit and its keenness from myself downwards. The several years we had spent in training the cadre of Volunteers to act as instructors did not seem to be wasted. All Volunteer ranks worked splendidly and trained the Z men by example and encouragement, not by driving them. Only one Z man could have been regarded as a "misfit."

A few of the N.S. men have volunteered: these are the cream and are all good men; more should follow. However my impression is that most N.S. men are content to remain Privates and do the bare minimum. I do not think Z men had any obvious effect on them.

I doubt if many Z men will enlist in the T.A. If they had been near the unit I believe a large number would have volunteered. As most live miles away they would prefer to be recalled to this unit which they know rather than enlist locally with a strange unit.

On departure the 15 Field Ambulance again worked wonders for us. Z men handed in their unit articles in the camp—any losses were noted. They then passed to 15 Field Ambulance, were de-kitted and any losses again noted. When all deficiencies had been added up they were paid out less the cost of deficiencies. There were no complaints and grumbles. The cadre of the unit then packed itself up and handed over in the usual way.

The unit was visited by:

Lieut.-General Sir N. Cantlie, *K.B.E., C.B., M.C., M.B., F.R.C.S., K.H.S., D.G.M.S.*

Maj.-General K. A. M. Tomory, *C.B., O.B.E., M.B., K.H.P., D.D.M.S. Eastern Command.*

Maj.-General P. E. Mitchiner, *C.B., C.B.E., T.D., M.D., M.S., F.R.C.S., K.H.S.*

Major-General B. C. H. Kimmings, *C.B., D.B.E., Commander Home Counties District.*

Brig. K. E. Escritt, *O.B.E., Inspector of Training.*

Colonel R. H. Robinson, *T.D., A.D.M.S., Home Counties District.*

The impression gained by the unit was that these visiting Officers were pleased with the set up and training. The visiting Officers (V.I.P.s) came to get their impression of the Z men. The D.G.A.M.S. was particularly pleased to find 3 Nursing Officers helping with the training, a thing he had never known before.

Church Parade.—During the middle Sunday, Church Parade was held after which the A.D.M.S. presented a Sussex T. A. Certificate of Merit to the Sjt. cook.

A march past followed, A.D.M.S. taking the salute.

When the idea was explained to all, the Z men very quickly worked on their uniforms and belts so that the turn out was good. Their marching was good and it was quite obvious they had not forgotten to behave as soldiers. This variety of training in the ceremonial drill was as well carried out as the other main part of the training.

PART III

A TRAINING UNIT (FIELD DRESSING STATION, T.A.)

Of the Z Reservists called up for service with the F.D.S. it was noted that the majority had had service with Base Hospitals, but very few had been with a Field Ambulance or Field Dressing Station.

The men arrived cheerful and there was no moaning at having been recalled. They were well kitted out by the 15 Field Ambulance—only one man had a jacket which did not fit him. Each man was given a slip of paper which showed his rank, star rating and rate of pay. He was asked to comment if this was incorrect. One A.C.C. cook contested this and the matter was taken up successfully with O. i/c Records. The only other case was one Sjt. R.A.M.C. He had been shown on the original nominal roll, supplied by Records, as S/Sjt. and the unit had therefore written to him to tell him that he would be employed and paid as S/Sjt. On the nominal roll from the paymaster he was shown as Sjt. and on inquiry it was found that he had, in fact, never reached higher than the rank of Sjt. An error on the original nominal Roll was admitted, but it was not possible to alter it, and he had to be paid as a Serjeant. This incident led to considerable ill-feeling and probably lost a recruit for the T.A.

The men fell into the routine easily. From the first day they drilled as trained soldiers and the senior N.C.O.s were able to give lectures with only a minimum of revision. As previously explained most of the field work was new to the men.

The first few days were hectic until everyone was sorted out. This was particularly noticeable in the kitchen, which was manned entirely by Z Reservist A.C.C. cooks under the unit Sjt. cook. However, once the Sjt. had learnt the capabilities of each man everything settled down. To the town dwellers unused to life in the open, rations appeared to be very short at first, but special entitlement to additional Rations for Hard Training was discovered, and their issue eased matters considerably.

There was not much interest in organized sport. The men liked to kick a football around in the field near their tents but an official cricket match was poorly supported.

Discipline was excellent and there was not a single minor charge during the two weeks. As the camp was near a large town most of the men seemed to disappear into the town in the evening. There was no case of V.D.

There were many friendships formed between Z Reservists and T.A. men. The men mixed together and were soon indistinguishable. Many reservists

said that if they had lived in the same town as that in which the unit was normally stationed they would have joined the T.A. with the unit. Unfortunately there was not a single man living within reasonable distance. This seemed to have the opposite effect in that the reservist argued that if there was going to be a war he would like to be called up with the unit that he already knew, rather than join a unit near home about which he knew nothing.

A few Officers and Senior N.C.O.s have been invited to apply for Territorial Commissions and appointments for service with the unit but with special permission to do their weekly drills with the nearest Medical Unit and to join this unit in camp each year. It is not yet known if this will be permitted.

The training programme consisted of lectures, demonstrations and exercises. There was no P.T. or route march. R.S.M. parade was at 0830 hours and the rest of the morning was divided into three periods and there were two periods in the afternoon. As usual the most popular days were when the men had something active to do. A river crossing with improvised equipment and evacuation of casualties across the river was very popular. A map-reading exercise produced disappointing results but the men enjoyed it. It showed that constant repetition in map reading is essential.

A lecture, on the evacuation of casualties by air, with lantern slides, was given to officers and Senior N.C.O.s by Colonel A. M. Meneces, *C.B.E., D.S.O.*; another lecture for Medical officers, dealing with psychotic casualties in the field, was delivered by Brigadier R. J. Rosie.

The T.A. had to shoot its Annual Course on the ranges and so all Z men shot alongside them. Very few had done more than a recruits' shooting course and time for instruction before shooting was limited. Results were therefore poor. In fact, without individual rifles properly "zero-ed" for each man it is difficult to see how the R.A.M.C. can ever become efficient in this art.

A recreational visit to Canterbury was much appreciated by all.

One Ceremonial Parade was held after Church Parade. The men, especially the R.A.S.C., said they had enjoyed it and wished that there had been more squad drill, which was purposely kept to a minimum in the programme.

The R.A.S.C. element was a special problem. There was no Transport Officer to appreciate their difficulties. There were approximately three drivers to each vehicle. The T.A. complained that the Z reservists had ruined the trucks they had so carefully looked after all the year. Many had not driven since their discharge.

The R.A.S.C. Sjt. (T.A.) was one of the busiest men in the unit. He had to lecture on the vehicles and their maintenance, to superintend the driving, to lecture on the rifle and Sten gun and do many other things. It was found impossible to arrange to borrow another instructor and the best that could be done for them was a visit to a Command Workshops. Next year much more care will have to be given to this side of the F.D.S. to see that the men get some additional instruction.

Another overworked individual was the P.S.I. This was eased by calling on a S/Sjt. to help him.

One frequent criticism was that the Army expected 8 men to sleep in a tent with civilian clothes and suitcases also in the tent. This led to considerable overcrowding.

Lastly the Officers. Five Z Reservists were called up to fill the vacancies. All were young and had served eighteen months as R.M.O.s in various parts of the world. None had any experience of Field Units.

Each was placed in nominal command or second in command of a "training company" and competitive spirit was introduced. All were keen to do their best but this led to some trouble with the Senior N.C.O.s of the T.A. who perhaps felt that they ought to be training the Officers, as they had so much more experience.

The general impression was that it had been a most successful Camp and the presence of Z Reservists had stimulated the T.A. to do its best.

A FOOTNOTE

The foregoing notes are by the Commanding Officers of the one reception unit and two training units dealing with the first batch of Z reservists to undergo training in Home Counties District; they have been submitted for publication in the JOURNAL OF THE R.A.M.C. so that they may be a permanent record and may be of use or interest to Commanding Officers on future occasions.

I would like to add a few comments of my own.

(1) First and foremost: However good the arrangements within the training unit, they will be cancelled out by the smallest hitch in the unit responsible for reception and dispersion—the Z men must start off by feeling that they are welcome and that their reception has really been planned and not left to chance—on dispersal they must leave with a pleasant taste in their mouths, in the literal and actual sense. The great success of this venture at Shorncliffe has been due to the most efficient management of the smooth working machinery of the Field Ambulance concerned with reception and dispersion.

(2) Recruitment of volunteers for the T.A. from Z Reservists is not likely to take place in appreciable numbers unless the men are called up for training with units near their homes; propaganda by the T.A. unit is not likely to be successful in this respect, but they should be able to do some useful propaganda work in connexion with the JOURNAL OF THE R.A.M.C., the Army Medical Services Magazine and the Corps Association.

(3) The two training units shared camp facilities and the training facilities of the 50 bedded hospital. Many of the Reservists (R.A.M.C.) had had plenty of hospital experience; what they lacked was experience in more active field units—probably in the future training programmes will have to be more elaborate so that more or less time can be directed to Ward Department work or field work, according to the previous experience of the majority of men called up.

(4) When the men are Laboratory Technicians, Radiographers and so on in civilian life they do not need much technical training in Camp (except possibly to get used to handling special Military equipment again)—but where a man is called up as, say, a Radiographer, and his civilian employment is, say, bank clerk, then it is important that adequate technical equipment should be readily available for his training—when units training miles away from a suitable hospital, then mobile X-ray equipment should be brought to the Camp.

(5) Experience in the handling of the rifle is a desirable part of the R.A.M.C. man's training for the following reasons:

(i) He might have to unload a casualty's rifle and should know how to do it.

- (ii) He might have to use a rifle as a splint and should know how to handle it with safety.
- (iii) He might have to have charge of an arms dump, or an armoury, in a C.C.S. or hospital (patients' weapons).
- (iv) He might have to defend casualties in "uncivilized" warfare.
- (v) He might have to defend himself against foes who are not covered by the Geneva Convention (e.g. marauders not officially recognized as belligerents).

Training should be obligatory, but there should be no need to "pass a course" to the extent of being able to scare a bull or even hit the target every time.

(6) The Z Reservists, like the T.A. men, suddenly thrown into camp life and exercise to which they are not used become desperately hungry and the normal Home Service Ration Scale was not enough—the arduous duty supplement which was authorized was most important.

(7) Much of the success of the Z Reservists training this year has been due to the keenness and splendid spirit of the Reservists themselves—those who had a grievance about being called-up entered into the thing in the right spirit and did not allow their grievance to play any appreciable part. I believe many would welcome a compulsory call-up again for similar training, for, after all, the boss and the missus cannot stop that bit of escape.

(8) Last—the training of Z Reservists has thrown a great burden on the officers and other ranks of the T.A. They have shouldered this burden willingly and, in the old T.A. tradition, are already asking for more.

THE INFECTED HAND

BY

Lieutenant D. L. GARDENER, M.B., M.R.C.P.E.

Royal Army Medical Corps

THIS paper deals briefly with certain aspects of the hand infections frequently encountered in peacetime military practice. The aim is to stress the importance of these lesions as a cause of invalidism, and to indicate in what way the day-to-day treatment of this type of case can be improved. It is emphasized that this is not a comprehensive review of any one ætiologically or anatomically distinct type of infection—this is primarily because the records available for analysis are necessarily brief.

The material comprises a consecutive series of 100 cases of infection of the hand treated during the past four years at a small military hospital. No case treated during this time has been omitted from review—the series

ERRATA

The following corrections should be made to the article "The Infected Hand," Vol. XCVII, No. 5, 359–362, and on front cover.

For Lieutenant D. L. Gardener *read* Lieutenant D. L. Gardner.

For systematically, page 360, line 6, *read* systemically.

For course, page 360, line 15, *read* cause.

After with, page 360, line 29, *insert* it.

After Miles, page 360, line 33, *insert* A. A. and amend 267 to 266.

For is, page 361, line 17, *read* are.

For Pentothal, page 362, line 2, *read* Thiopentone.

THE AGE DISTRIBUTION

It is interesting to note that 55 per cent of the hand infections occurred among the age-group 18–21. It might be observed that this group contains predominantly those men who undertake daily manual labour, but it may also be that men in this (younger) group are less likely to draw attention to a hand infection at such a stage that it can still be treated conservatively. Few hand infections were found to occur in men over the age of 30.

THE METHOD OF TREATMENT

Since this series extends over a period of four years, it is noticeable that there has been a gradual trend away from the use of moist heat and sulphonamides in the treatment of hand infections in the Army, and a gradual adoption

of early antibiotic therapy, combined with judicious surgery. The trend, however, has not reached fulfilment, and there is still a tendency to waste time on local non-specific therapy.

It is confirmed by the figures obtained here that to adopt the treatment most economical in man-power, and at the same time to satisfy bacteriological criteria, it is essential to use penicillin systematically at an early stage in the infective process.

Implicit in this statement is the assumption that the patient will draw attention to the infected part at such a time that surgery is not necessary. In a recent survey of finger infections in nurses (Quarry Wood, *B.M.J.*, 1950), it has been shown that an intelligent person, trained to report an early lesion, need seldom come to a surgery.

Men with small or apparently trivial hand lesions should therefore be encouraged to report these on an early date. Only in this way will a common course of hospitalization be banished.

PERIOD OF INVALIDISM

It is difficult to compare profitably the period spent in hospital by cases of different aetiology, while being treated by different methods. It is felt that the comparison is justifiable, however, because of the light it throws on the overall efficacy of the methods used. Some figures are confusing and should not be interpreted literally, e.g. the reason why cases treated by sulphonamides and penicillin in combination spent longer in hospital on the average, than cases treated by sulphonamides alone, was due commonly to the failure of sulphonamide therapy in the former group, and the consequent late use of penicillin.

It is noted that even the best series of cases, i.e. those treated by penicillin alone, spent almost, on the average, six days in hospital.

It is concluded that the use of sulphonamides in hand infections carries with the risk of prolonging treatment by the latter necessity of having to use other drugs. The inefficiency of sulphonamides in the type of case considered here is presumably due in part to the inactivation of sulphonamides in the presence of pus, and in part to the presence of sulphonamide-resistant organisms (Miles, *M.R.C. Spec. Rep. Series*, 267). Further investigation into the bacteriology of these cases was not possible.

COMPLICATIONS

Complications were few. No cases noted to have had a drug sensitivity reaction; osteitis developed clinically in only one case of pulp infection. One man who had recurrent infections was found to be a chronic nail biter.

ANÆSTHESIA

Intravenous thiopentone was the anæsthetic of choice in 26 of the 35 cases in which the anæsthetic used was specified. Two abscesses only were opened under local anæsthesia.

DISCUSSION

The main lesson to be derived from this necessarily incomplete review is that, in the locality under discussion, and during the past four years, many cases of hand infection have, at any rate initially, received inadequate treatment. Only 26 cases of the 59 specified as being primarily of an infective nature, and not associated with trauma, could be fully and satisfactorily treated with penicillin alone, an indication that the remainder were seen at a late period.

Delay in starting penicillin therapy was in most cases due to delay on the part of the patient in drawing attention to the infection. In many pus was present when the patient was first seen by a Medical Officer. The importance of reporting even minor hand lesions requires emphasis—an important source of morbidity in young adult males could thus be reduced.

SUMMARY

(1) The treatment and period of invalidism of 100 consecutive cases of hand infection, treated at a small military hospital during the past four years, is reviewed.

(2) In order to ensure minimum invalidism from this cause in the future, troops should be encouraged to report even small hand lesions at an early date.

I wish to thank Colonel MacMillan, Consulting Surgeon, B.A.O.R., for his advice.

<i>Nature of lesion</i>				<i>Method of treatment</i>			
Paronychia	...	...	28	Heat only	...	...	3
Pulp infection	...	...	20	Penicillin cream and other local applications	...	...	5
Infected wound	...	...	23	Incision	...	...	15
Thenar space	...	...	1	Penicillin	...	...	28
Infected blister	...	...	5	Sulphonamides	...	...	5
Unspecified	...	...	23	Penicillin and sulphonamides	...	...	4
			100	Penicillin and incision	...	...	37
				Sulphonamides and incision	...	...	1
				Unknown	...	...	2
							100

Period of invalidism according to method of treatment
(where known and detailed)

	<i>Days</i>	<i>No. of cases</i>
Heat only	8	3
Local applications	8.2	5
Incision	7.6	15
Penicillin	5.1	26
Sulphonamides	9.4	5
Penicillin and sulphonamides	14.0	4
Penicillin and incision	6.0	34
Sulphonamides and incision	8.0	1

Age distribution

Children	...	...	...	7
18-21 years	...	...	...	55
Over 40 years	...	...	...	5
Unknown	...	...	...	3

Complications

Recurrence	...	...	...	2
Osteitis and tenosynovitis	...	...	...	1

Anæsthetic

Pentothal	...	...	...	26
N ₂ O	...	...	...	4
N ₂ O and O ₂	...	...	...	1
None	...	...	...	2
(Local	...	...	...	2)
Unspecified	...	...	...	14
				—
				47

IMPRESSIONS ON THE USE OF "ANTABUSE" IN THE TREATMENT OF ALCOHOLISM IN THE ARMY¹

BY

Lieut.-Colonel J. T. ROBINSON, *O.B.E.*, M.A., M.D., D.P.M., D.T.M.&H.
Adviser in Psychiatry, H.Q., B.A.O.R.

AND

Captain H. B. KIDD, B.A., M.B., B.Ch.
Graded Psychiatrist, Royal Victoria Hospital, Netley

INTRODUCTION

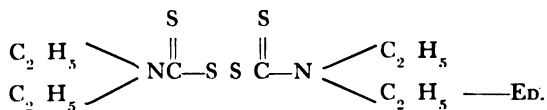
THE value of tetra-ethyl-thiuram-disulphide in the treatment of those addicted to alcohol has been widely reported in the literature. It is sold under various proprietary names of which "Antabuse" is probably the best known in England.

In view of the promising results reported on the use of "Antabuse," permission was obtained to use the drug on service personnel.

Alcoholism as used in this paper signifies "abnormal" drinking habits. The normal drinker is the social or moderate drinker who may even on occasion drink to excess but has no particular craving for alcohol and is able to control his indulgence in it. Abnormal drinking is defined by Bowman and Jellinek (1942) as "habitual indulgence in alcoholic beverage beyond the limits of merely satisfying thirst or of using the alcoholic beverages in the sense in which a condiment is used, or in its formal social use, or as an occasional stimulant." None of the series herein reported were chronic alcoholics which is recognized clinically as permanent physical and mental impairment following the prolonged use of alcoholic beverages.

Treatment was carried out in the Royal Victoria Hospital, Netley, and first commenced in March 1950. The authors have had the opportunity to follow up 10 cases over a period of twelve months. This was made possible by the co-operation of Area and Command Psychiatrists who interviewed these patients at regular intervals, and by personal communications from relatives and patients concerned.

¹*Antabuse* is a medicinal trade name of a substance used for several other purposes. The substance has the following formula:



This series is too small to reach any definite conclusions. They are, however, the first records of patients treated with "Antabuse" in the Army. All cases were officers and all had distinguished war records and were above average intelligence.

The average age of this small group was 38 years, the youngest being 32 and the oldest 45 years.

All had come from good homes where drinking was moderate and not discouraged. The majority had first taken alcohol at the age of 18 years after leaving school. In all cases beer and an occasional sherry were the first alcoholic beverages consumed, which lead on occasions to excessive consumption with the usual "hang over." Later and particularly during the war years and after all varieties of alcoholic beverage were consumed in excessive quantities, either as a regular habit or in bouts of two to three days with several months of sobriety.

All were faced with the possibility of disciplinary action and ultimate discharge from the Service if medical treatment could not cure them of their alcoholism. All, if cured, had many years to serve before retirement and their practical experience was invaluable to the Army.

All were admitted in a toxic condition and their breath smelt strongly of alcohol. All except one were heavy smokers whose fingers were darkly stained with nicotine. None were pipe smokers. In all, except 2, their personal hygiene left much to be desired, and their battle dress or uniform in which they arrived at the hospital was stained and untidy.

EFFECT OF THE DRUG

Hald and Jacobsen (1948) proved conclusively that "Antabuse" is non-toxic to the human body so long as alcohol is not consumed. They showed, however, that when alcohol is imbibed after the drug is taken, that toxic symptoms occur.

The drug has the effect of sensitizing the patient to alcohol. It acts by interfering with the metabolism of alcohol in the body, giving rise to a rapid accumulation of acetaldehyde in the blood stream. Asmussen *et al.* (1948) showed that the combination of "Antabuse" and alcohol produced increase in ventilation and a decrease in alveolar carbon dioxide. They concluded that the combination produced a substance which directly or indirectly increased the irritability of the respiratory centre. They noted an increase in cardiac output and in pulse-rate. They also proved that the intravenous injection of acetaldehyde produces the same symptoms as those observed in patients treated with "Antabuse" who have been given alcohol.

Stotz (1943) proved that small amounts of acetaldehyde are found in normal people after taking alcohol.

Hald and Jacobsen (1948) ascertained that in those who had taken "Antabuse" and alcohol, blood acetaldehyde levels were raised up to five times those of normal people after taking alcohol. They observed that about 20 per cent of a given dose is excreted in the faeces during the following one to three

days. They postulate that the protracted action of the drug is due to fixation of the drug in the tissues after absorption. They noted that "Antabuse" did not interfere with the rate of alcohol elimination from the organism.

The toxic symptoms arise from the effect of the drug on the cardiovascular and respiratory systems. They include a feeling of heat followed by intense flushing located principally in the face, spreading in some cases to the neck and upper parts of the chest and arms, or even the abdomen. A constant effect noted was dilatation of the scleral vessels, making the person look "bull-eyed." The pulse-rate is raised to 120-140 per minute and cardiac output is increased. The blood pressure is unaffected. These symptoms were followed by palpitations and sometimes slight dyspnoea. More frequently, however, the patients feel a mild irritation in the throat or in the trachea which results in slight coughing. After large doses of alcohol are consumed following the injection of the drug, nausea and vomiting often developed. They noted that when the nausea was intense, the blushing gave way to pallor. At this stage there may be a considerable fall in blood pressure, headache was also frequently present.

These symptoms last from two to five hours and then gradually disappear, leaving the patient drowsy. The day after, the patient feels lethargic and listless, but can carry on his work.

Carver (1949) has in addition to these symptoms described giddiness and hammering in the ears and a feeling of anxiety and distress in the patient. He observed that symptoms occur within a quarter of an hour of taking alcohol. Larsen (1948), however, appears to consider that the period of time varies before the initial production of symptoms. He reports one drinker in whom symptoms failed to develop for a period of one hour.

All authorities are agreed that the intensity and duration of the symptoms depend on the dose of alcohol and the idiosyncrasy of the individual. Symptoms are seen after every kind of alcoholic beverage, including beer wine and spirits.

Much of the earlier literature tends to regard the treatment as of little real danger and advocates out-patient treatment. Hald, Jacobsen and Larsen (1948) allege that a fully developed collapse is never seen in patients treated with "Antabuse." Jones (1949), however, warns of the danger of sudden severe reaction even in young adults and records a case of death following the ingestion of one ounce of rum in a 29-year-old white male treated with "Antabuse." Some cases of convulsions and allergic skin reactions have been recorded (Chevens, 1949), and a few patients passed into a maniacal state. Gelbman and Epstein (1949) report convulsions followed by unconsciousness and hemiparesis occurring in a man of 58 who was a mild diabetic undergoing treatment.

Carver (1949) and Chevens (1949) are of the opinion that the patient should be kept in hospital during his initial treatment and this is the generally accepted view of those with experience in using the drug. The latter, in a personal communication, states that it is quite unjustified to give this drug without the knowledge of the patient of the risks he runs if he drinks. He also issues a note of warning of the legal complications which might arise in a fatal

case, if the physician has not fully acquainted the patient of the dangers of the drug.

Contra-indications.—Special contra-indications are marked arteriosclerosis with hypertension and serious damage to the liver. Some authorities consider that patients who have been taking paraldehyde should not be given "Antabuse." Gludd (1949) recommends that patients suffering from the following conditions should either not be given "Antabuse" or should be treated with the greatest caution:

- (1) Myocardial failure or disease.
- (2) Sclerosis of the liver.
- (3) Chronic or acute nephritis.
- (4) Epilepsy.
- (5) Goitre.
- (6) Pregnancy, in case of damage of the fœtus.
- (7) Drug addicts.
- (8) Diabetes mellitus.
- (9) Asthma; which is made worse.
- (10) Disease of the hæmatopoietic system.

ADMINISTRATION AND PREPARATION

All authorities stress the importance of a thorough medical examination of the patient before giving the drug. This includes thorough physical investigations and a detailed study and examination of the psychiatric and social background of the patient. They stress special attention to the cardiovascular system and liver. Most authorities consider that the patient should be got physically fit with a brief period of hospitalization prior to treatment. Some consider electrocardiograms should be taken in every case as coronary attacks have been reported following ingestion of alcohol in patients taking "Antabuse." All authorities are agreed that one must treat the individual and environmental stresses of the patient with psychotherapy. The drug is useless unless the underlying motivation are dealt with, since there is a danger that the unconscious urges which gain neurotic gratification in alcohol, will, if this means of escape is denied by pharmacological means alone, break out in some other objectionable form.

Patients should be carefully selected for treatment and must be desirous of giving up alcohol and be prepared to make an honest effort to co-operate in overcoming the habit. Bowman (1950) stresses that giving the drug surreptitiously without the patient's knowledge is a dangerous procedure and will not succeed in getting him off alcohol.

The object of the treatment is to sensitize the patient to the effects of alcohol in combination with "Antabuse" and by maintenance doses of the latter to help him to avoid the consumption of alcohol in the future.

Larsen (1948) observed in a large series of cases that the patients on this treatment lose their desire for alcohol, and this is generally agreed by all who

have experience in using this drug. All authorities are agreed that the chief value in the drug is that it paves the way for psychotherapeutic procedures.

Barrera *et al.* (1950) state that the effect of "Antabuse" lasts ten to fourteen days after discontinuance of the drug and sometimes longer.

CAUSES OF ABNORMAL DRINKING

Those experienced in treating alcoholics agree that heredity plays no part in the ætiology of abnormal drinking. It was felt, however, that investigation into the personality structure of the patients in this series might elicit some traits which would indicate reasons for excessive consumption. In every case a careful investigation into past medical history, development, progress in school, employment and Service life and family history and social background was made. These investigations revealed nothing of significance.

In one case the parents were divorced when the patient was 12 years old. He saw his father for short periods annually and on these occasions was happy. He lived with his mother who re-married an aggressive, domineering man who drank heavily and of whom the patient was terrified. The latter was lonely, solitary and introspective and afraid of punishment in school.

In two other cases the father was a heavy drinker and in one of these the patient's brothers also drank to excess on occasions.

In one case the patient's childhood was happy for the first five years when his mother died and father re-married. After this the children were dispersed to relatives and the patient's formative years were spent in an unstable and adverse environment. The remaining patients had a stable and apparently happy childhood.

All patients in this series were married. In one the patient's wife formed a liaison during the war and left the patient. After this event the patient commenced drinking heavily. Of the remainder marriage was happy except during their alcoholic bouts which caused considerable disharmony in the home.

Psychiatrists generally regard alcoholism as a symptom of mental ill-health. The latter being used in its widest concept to include psychosis, psychoneurosis or minor social maladjustments. No evidence of any psychotic illness was found in any of this series. Nor was any brain injury or organic disease thereof found in detailed investigation of the central nervous system. One patient was a psychopathic personality who was emotionally unstable, irresponsible and impulsive and whose attitude to life was the gratification of his own wishes at all times. All the other patients were predominately social drinkers who had drifted into abnormal drinking without knowing it. The outstanding characteristics obtained from relatives and friends who knew these patients well was marked shyness and feelings of inferiority when sober. They were sensitive and very resentful of criticism and moody. They exhibited restlessness and uneasiness in company and a general tendency to "chain smoking." After a few drinks they became happy and calm.

INVESTIGATION AND TREATMENT

All patients were treated by the authors as in-patients. On admission they were put to bed and ordered a bath. All alcohol was removed from them. No visitors were allowed except immediate relatives who were interviewed before seeing the patient. This was done to ensure that no alcohol was surreptitiously brought for the patient as it was anticipated that this was likely to happen. It also provided an opportunity to give detailed information to the relatives regarding diagnosis, treatment and disposal. This precaution proved its value as relatives had on occasions been unaware of the reasons for the patient's admission and had inadvertently brought alcohol at the request of the patients concerned. A purgative was administered and each was put on large doses of vitamin B_1 and B_2 . A normal diet and copious glucose fluids were given. Full physical examination was carried out on each case, including routine laboratory investigations with urine examination, total red and white blood cell count and differential white cell counts.

Septic foci were treated. The B.S.R. was also carried out but was only significantly high in one patient with pyorrhœa. It rapidly fell after teeth were removed and gums healed.

In only one patient was an electroencephalogram taken. This was a patient subject to periodic bouts of drinking every two to three months. For a few days prior to indulgence he felt restless, tense and irritable. During the bout he became violent and on one occasion his aggressiveness resulted in civil police proceedings. The investigation demonstrated no cerebral dysrhythmia at rest or after hyperventilation.

All patients had tender, palpable livers and in each liver function tests were carried out. These were normal in all cases. In none was there evidence of peripheral neuritis. Sedatives and hypnotics were withheld and were in fact not required as all patients slept well. No alcohol was permitted in any form.

After one to three days all exhibited withdrawal effects of alcohol with marked parasympathetic over-activity indicated by abdominal "cramp-like" pains, sweating, salivation, lachrymation and bronchial catarrh and a craving for alcohol. These symptoms were accompanied by extreme restlessness and tremors of the lips, tongue and distal parts of the upper limbs. These effects were counteracted by giving the patients belladonna and small doses of insulin. Within forty-eight hours all these symptoms had cleared up, and patients allowed up.

Antabuse Regime.—Carver (1949) administered the drug by two methods. One method was to admit the patient to an institution and after detoxication he gave 1 gramme followed next day by 0.75 gramme at breakfast. He allowed the patient on parole and did not inform him of the symptoms which would arise if he consumed alcohol. The physician draws the obvious conclusion and explains to the patient that the susceptibility of persons under treatment is such that any lapse is liable to be fraught with unpleasant symptoms. His second method is to discuss frankly with the patient the way the drug can be used to cure his individual case. He is warned of the effects and it is made clear to him that it can temporarily help his resistance to alcohol.

Others experienced in the use of this drug give larger doses, notably Gelbman and Epstein (1949) who commence with an initial dose of 2 grammes on the first day, 1·5 grammes on the second day and 1 gramme on the third day.

In this small series the treatment was frankly discussed with the patient and relatives and a warning given of the effect of alcoholic consumption. Permission was in all cases given freely as patients were genuinely desirous of being cured of their habit. When the patient was clinically considered physically fit treatment with "Antabuse" was commenced. Each patient was given 1 gramme of "Antabuse" at 9 p.m. The following morning he was given another 1 gramme at breakfast. That afternoon sensitization was begun. He was given 2 oz. of whiskey either neat, with soda, or water, and this dose was repeated every quarter of an hour until the patient became pale and vomiting ensued. This treatment was carried out in a room specially equipped for the purpose. Oxygen cylinders were tested and ready for use. Nicotinic acid and coramine were available with sterile needles, and ascorbic acid tablets, glucose solutions for intravenous and oral administration were to hand. The patient's reactions were carefully recorded and blood pressure readings taken every quarter of an hour. The reactions followed closely those of other workers and in no case was the blood pressure raised. No reactions were severe enough to cause alarm. Recovery varied from 4 to 6 hours when the patient felt no ill-effects other than a sensation of drowsiness. This regime was repeated next day when reactions were similar though much accelerated, more severe and prolonged. In no case was it necessary to repeat sensitization.

Thereafter the patient was given a daily maintenance dose of 0·5 gramme of "Antabuse" with breakfast. He was kept in hospital for a further week, allowed up and encouraged to take exercise and allowed out on parole for specific hours. He was made to carry a card in a place likely to be seen on which was written "ON ANTABUSE. NO ALCOHOL TO BE GIVEN IF I COLLAPSE." The purpose of this was to protect him from any Samaritan who might try to revive him with brandy or other alcoholic beverage. The patient was then sent on one month's sick leave in the care of relatives. He was given an adequate supply of the drug to continue his daily maintenance dose and carried his special card. The relatives were asked to provide weekly reports on his progress and in no case failed to do so. The patient was instructed to report back for further assessment after sick leave. He was fully assessed clinically and returned to duty. Full details of each case were sent to the unit medical officer and to the Command psychiatrist. This was regarded as important because it was recognized that to give patients medicine which has an alcoholic basis for other complaints would be dangerous.

The maintenance dose was reduced to 0·5 gramme every second day for the second month and every third day for the third month. Thereafter the patient was recommended to take 0·5 gramme at weekly intervals for a further three months.

RESULTS

Eight patients in this small series are still serving in the Army. Of these 2 relapsed on one occasion only within three months and took a small amount of alcohol. The effect was such that no further relapse ensued. None of these have consumed any alcohol since and are doing satisfactory duty in the Army. It is of interest that one of these had previously been treated on two occasions in a civil hospital with apomorphine and insulin on respective occasions with no success.

Two patients resigned their Commission and their resignations were accepted by the Army Council. One failed to keep in touch and the authors have no knowledge of him. The other obtained a good civilian appointment and has not relapsed so far.

One patient was a psychopathic personality and one of the earliest treated. This patient did badly and was eventually discharged the Service. He was not a suitable case for treatment as he failed to co-operate in his treatment.

CONCLUSIONS

These results indicate that "Antabuse" does assist patients to overcome the habit of overindulgence in alcohol.

All patients who responded well to treatment were highly intelligent and genuinely desirous of overcoming their handicap which was seriously affecting their efficiency.

The relatives of those who responded well gave every encouragement and assistance and probably had much to do with the results obtained.

Success depends also on the patient's co-operation in taking the drug as ordered and on careful observation and follow-up by those responsible for their treatment.

The initial sensitization should be carried out in hospital with the patient under constant observation with all available means ready for any complications which might ensue. The drug is too dangerous to use in out-patient treatment.

The medical officer of the unit and the Command psychiatrist concerned must be given full case notes and their co-operation obtained in keeping the patient under observation for the first six months.

SUMMARY

The use of "Antabuse" in the treatment of abnormal drinking in the Army in a small series of cases is recorded.

The necessity for the admission to hospital of all such cases for detoxication and sensitization is emphasized. The drug is unsuitable for out-patient treatment in the Army.

Extensive investigations revealed no conclusive personality traits on this series.

All had the characteristics of shyness, sensitivity, inferiority feelings and

exhibited tension and restlessness in company when sober. They were predominantly social drinkers who drifted into abnormal drinking almost without knowing it.

The co-operation of patients, relatives and medical personnel responsible for their treatment is stressed.

The necessity for the patient to carry a special card indicating that he is on "Antabuse" treatment and must not be given alcohol is emphasized.

REFERENCES

- ASMUSSEN, E., HALD, J., JACOBSEN, E., and JORGENSEN, G. (1948) *Acta Pharm.*, **4**, 297-304.
—, —, and LARSEN, V. (1948) *Acta Pharm.* **4**, 311-320.
—, —, —, (1948) *Can. Med. Ass. Jl.*, **60**, 311.
BARRERA, S. E., OSINSKI, W. A., and DANDOFF, E. (1950) *Amer. Jl. Psych.*, **107**, No. 1, 8.
BOWMAN, K. M., and JEILINEK, E. M. (1942) *Alcohol Addiction and Chronic Alcoholism*, 12, New Haven, York.
—, (1950) *Amer. Jl. Psych.*, **106**, No. 7, 524.
CARVER, A. E. (1949) *Brit. Med. Jl.*, August 27, 466.
CHEVENS, L. C. F. (1949) *Med. Press*, **222**, No. 5763, October 19.
GELBMAN, F., and EPSTEIN, N. B. (1949) *Can. Med. Ass. Jl.*, **60**, 549.
GLUDD, E. (1949) *Quart. J. Stud. Alc.*, **10**, 185, September.
HALD, J., JACOBSEN, E., and LARSEN V. (1948) *Acta Pharm.*, **4**, 285-296.
—, —, (1948) *Lancet*, **2**, 1001.
JONES, R. O. (1949) *Can. Med. Ass. Jl.*, **60**, 609.
LARSEN, O. M. (1948) *Lancet*, **2**, 1004.
PROUT, C. T., STRONGEN, E. J., and WHITE, M. A. (1950) *Amer. Jl. Psych.*, **107**, No. 1, 14.
STOTZ, E. (1943) *J. Biol. Chem.*, **148**, 585.
-

A LOW TEMPERATURE TEMOINE TUBE FOR INDICATING FAILURES IN REFRIGERATION

BY

Major A. W. MORROW, B.A., B.Sc.

Royal Army Medical Corps

WITH THE TECHNICAL ASSISTANCE OF

Corporal A. J. GRIFFITHS

Royal Army Medical Corps

From the Hygiene Department, Central Medical Laboratory, M.E.L.F. 15

THE importance of continuous cold storage of certain biological products, and of the maintenance of a degree of refrigeration while such products are in transit, is well recognized. Yellow fever vaccine is perhaps the best example of a product with a low heat tolerance since it is rapidly killed at temperatures above 40° C., but other preparations containing living virus, such as vaccine lymph, require to be kept at low temperatures which must be maintained during transit. Continuous cold storage is also necessary for blood banks and in containers for the transportation of blood.

It is necessary to determine that the limits of a requisite temperature range have not been exceeded in a static refrigerator following power cuts or mechanical failure or in the thermos container while in transit. The upper critical level depends upon the biological product, but in general is in the region of 5° C. to 10° C. It is also of value, in certain cases, to ascertain whether the temperature has risen above freezing point.

In a static refrigerator the following indications of continued cold conditions even when the mechanism is, or has been, out of operation may be noted.

- (1) In the main cabinet: a coating of ice adhering to the exterior of the freezing compartment.
- (2) In the freezing compartment: a coating of ice on the outside or the presence of ice cubes in the ice trays.

In thermos transit containers the presence of ice or dry ice indicates that satisfactory conditions have been maintained throughout the journey.

In certain circumstances, however, these indications may be absent though a temperature likely to endanger the heat labile contents has not been reached. This is especially true when an ice salt freezing mixture has been used in thermos transit containers but ice is found to be absent at the end of the journey. In this case some form of indicator is essential if the loss or reassay of the valuable material is to be avoided.

For the main cabinet of the domestic type of refrigerator or for large cold storage units a maximum-minimum thermometer is ideal, but such an instrument is too large for the freezing chamber of the former and often has not the temperature accommodation for it. Neither can a maximum-minimum thermometer be used in packages for transport since, apart from its size and fragility, the unavoidable joltings and alterations of position will displace the indicator needles. It was therefore considered that a form of Temoine tube, of stout construction and capable of being prepared in any laboratory, was needed.

MATERIALS AND MANUFACTURE

The principle governing the working of the Temoine tube is orthodox in that it depends upon the solution of a dye once the melting point of the indicator solvent is reached, but is unorthodox because two liquids of different melting points are used and solution of the dye only takes place when the higher melting point solvent has been liquefied.

The reagents used for its preparation are:

- (1) Distilled water.
- (2) Benzene A.R.
- (3) An intensely coloured water soluble dye, e.g. basic fuchsin.

The apparatus required, which ought to be found in most laboratories, is as follows:

- (1) Thick-walled Kahn tubes 3 in. x $\frac{3}{8}$ in.
- (2) Capillary tubing of external diameter S.W.G. 16.
- (3) Two Pasteur pipettes, one marked at 0.2 ml., and the other at 0.4 ml.
- (4) Copper Wassermann test-tube rack fitted in an ice-tray.
- (5) A freezing mixture, e.g. salt and ice.
- (6) Small oxy-gas or Bunsen burner.

METHOD OF PREPARATION

The Kahn tubes are carefully washed and dried before use. It is best to soak them in chromo-sulphuric acid for a few hours, wash well in tap-water, rinse in several changes of distilled water and dry upside down in a wire rack in a warm hot-air oven.

(2) Small necks are made in the tubes. This is best done by roughly annealing a piece of glass tubing to the open end and rotating the tube about $1\frac{1}{2}$ - $2\frac{1}{2}$ cm. from the open end in a fine gas flame. It was found best to allow the glass, at the time of heating, to collapse rather than to pull it. In doing so only a short neck is made which improves the strength of the seal when the tube is completed.

(3) A Wassermann rack is fitted in an ice-tray from which the cube-making baffles have been removed. Powdered ice and salt-freezing mixture is packed around the bottoms of the tubes so that about half an inch from the bottom is surrounded with the mixture.

(4) Dry benzene A.R. 0.2 c.c. is introduced into each tube by means of the

marked Pasteur pipette, and the tray and the contents are put in the freezing compartment of a refrigerator to solidify.

(5) Capillary tubes to hold the dye are prepared in the normal way. They should have an exterior diameter of not less than S.W.G. 16. The end of the capillary tube is packed by continually plunging it into the powdered dye. This method will pack, tightly, about 2–3 mm. of the tube. A section approximately 1 mm. in length is cut off the end of the capillary by means of an ampoule knife or the end of a microscope slide.

(6) When the benzene is frozen hard one of the dye-containing capillary tubes is dropped on to it, care being taken to note whether any particles of the dye adhere to the wall of the test tube. A further 0.2 c.c. of the benzene is then added to each tube and is allowed to freeze hard.

Distilled water which has been cooled to below 4° C. is then layered on top of the frozen benzene, 0.4 c.c. to each tube, and is allowed to freeze also.

The constrictions in the test tubes are next drawn off in a small Bunsen or blow-pipe flame. Each finished ampoule is carefully returned to the rack so that the hot seal is not splashed or allowed to come into contact with the cold surface of the rack.

The Temoine tube is now ready for use.

There are certain points to be borne in mind in the preparation of the Temoine tubes:

(a) Make sure that the tubes are perfectly dry before adding benzene.

Benzene which has come in contact with water above 8° C. will not freeze even at –20° C.

(b) Before adding the second 0.2 c.c. quantity of benzene it should be cooled to below 8° C. This will ensure that if there is any water condensate in the tube the benzene will not absorb sufficient of it to render it unfreezable.

(c) The dye must be packed tightly in the capillary tubes so that when it is dropped on top of the first layer of frozen benzene none of the dye comes in contact with the constriction and/or the walls of the tube below. Should it happen it will be sufficient to colour the water and render the tubes useless from the beginning.

STORAGE AND TRANSPORTATION

When storing the tubes they should be kept in an upright position and below 0° C., preferably in the freezing compartment of a refrigerator. But when they are required as indicators they should be placed upside down (i.e. with the sealed end downwards), either free, or in a test tube rack or in a metal container.

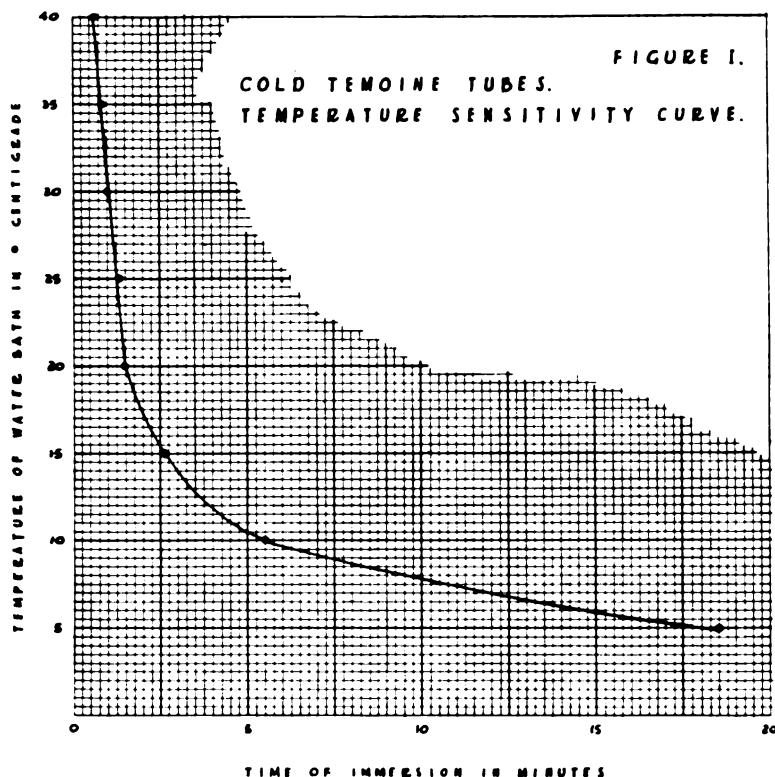
The inverted position serves three purposes. Firstly the appearance of a colourless liquid in the bottom of the tube is a ready index that the temperature has risen above 0° C.—the ice having become water. Hence the tube becomes an indicator of two critical temperatures. Secondly, the semi-melted benzene block slips from the top of the tube and floats on the water below so that when

the capillary tube is released from the frozen benzene it must fall through an inch depth of water which facilitates the rapid solution of the telltale dye. Thirdly, if the tube is not inverted and the water allowed to melt, it may diffuse down the sides of the solid benzene and give a false figure by dissolving some of the dye.

When required for transportation in the thermos transit containers it is best to have the Temoine tube free, vertical and in an inverted position, for if left lying on its side the ice and benzene will flow, after a short time, even though maintained well below 0°C .

SENSITIVITY OF TEMOINE TUBE

The melting-time curve is, as one would expect, parabolic. The Temoine tube will give a positive irreversible reading when maintained at 6°C . in eighteen minutes and at 40°C . in forty-five seconds. Figure 1 shows the melting time at certain definite maintained temperatures.



Two Temoine tubes were placed upside down, at each temperature under consideration in a temperature-controlled water bath. They were allowed to register without shaking. The end-point was taken as the point when all the benzene had become fluid. By this time, sufficient of the dye had gone into

solution to produce an unmistakable "positive" result which was even more striking on re-freezing the contents of the tube.

Slow rises in temperature were also examined. Two Temoine tubes were placed upside down in a beaker of 300 c.c. capacity with water at 4.5°C . The temperature of the atmosphere was 18.0°C . and the temperature of the water in the beaker rose to 7°C . in thirty minutes. This was sufficient to exhibit a "positive" end-joint. The same experiment was carried out between the temperatures of 5°C . and 8°C . during which the result was obtained in twenty-eight minutes.

When two of the tubes were placed in a metal rack at air temperatures at 18.5°C . an end-point was achieved in twenty-two minutes.

FIELD TRIALS

Reports from units holding stocks of the Temoine tubes in their refrigerators show that a colour change was apparent only after power cuts or mechanical failures. When maintained in the cabinet of a refrigerator the water only was found to be melted when the refrigerator was working properly. In deep-freeze refrigerators no change was indicated even after months of storage. In one case only a tube was different from the others in that the tube instead of standing upright had been tilted to one side and the benzene and water had flowed even though both were frozen quite hard. There was no coloration in this tube.

Only one report is to hand on the carriage of the tubes in transit thermos containers. The tubes did not change in colour nor had the water melted but then there was quite a large quantity of ice present when the container reached its destination.

SUMMARY

- (1) A cold Temoine tube for the indication of temperatures in the range 0°C .- 6°C . is described.
- (2) Its preparation and use is described in detail.
- (3) It gives a positive irreversible reading in eighteen minutes when maintained at 6°C .
- (4) A short note on field trials is also included.

I am indebted to Colonel G. T. L. Archer and Colonel A. N. B. Odhart of the Medical Directorate, G.H.Q., M.E.L.F., for all their suggestions and assistance in the production of this paper. Also to my Corps colleagues who have helped me by giving the tubes a trial.

“Q” FEVER A NEW DISEASE IN ARMIES

BY

Lieut.-Colonel BASIL BLEWITT, M.D., D.T.M.H.(Eng.)
Royal Army Medical Corps

INTRODUCTION

DURING the last war two new diseases in armies came to be recognized. In the tropics Scrub Typhus and in the more temperate climates “Q” Fever, the subject of this review.

This fever until the war regarded as a medical curiosity with localized distribution has since come to be recognized as of world-wide incidence and of special significance to the soldier. It has therefore seemed worth while to review the subject in this Journal providing at the same time a convenient bibliography for those who would delve more deeply.

The Australian studies through which the fever was first recognized and the broad principles of its natural history determined will be first considered; thereafter the American studies which have contributed so much to our appreciation of its military significance and finally the post-war studies which continue to uncover endemic foci throughout the world.

What follows is at best a parrot-like repetition of the work of others. If, however, the collation should help to increase interest and awareness of the entity it will have more than fulfilled its object, for we are destined in the future to encounter this new adversary with increasing frequency.

AUSTRALIAN STUDIES

Between 1933 and 1935 20 cases of a mild typhus-like disease were noted among the 800 employees of a Brisbane meat works. Fever and headache were the outstanding symptoms and the mortality had so far been nil. It differed from typhus group fevers in the absence of a rash and negative Wilson Weil-Felix tests while all routine laboratory investigations were uniformly negative. In 1935 its increasing frequency gave cause for concern and the Queensland Health Authorities commenced an investigation. Initially called ‘Q’(uery) fever it was within two years recognized as a rickettsiosis and the causal agent named *R. burneti* after Burnet who had defined its nature (Derrick [1], Burnet and Freeman [2]). Derrick concluded his original paper with the remark “The fevers of the Queensland Coast have long provided a complex

problem. For many years the composite picture of 'Coastal fever' has been evident and recent years have witnessed the culling out from the chaos one by one of a number of definite entities—'Q' fever is now the latest to be differentiated, it is not likely to be the last."

Following Derrick, Burnet and Freeman's original papers [1 and 2] a wide net was cast in search for the natural reservoir and vector in wild life and extensive serological surveys were undertaken for evidence of specific agglutinins in the blood of animals ("Burnet, Freeman, Derrick, *et al.* [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18]). By 1944, the natural history of the disease had been largely worked out, Derrick [19], and comparative cross immunity experiments with a newly discovered rickettsial infection of American ticks had suggested a close similarity between both entities (Burnet and Freeman [7, Dyer [24 and 25], Dyer, Topping and Bengston [27], Bengston [36]). In general the following conclusions had been reached.

(i) "Q" fever exists in nature among certain wild animals notably the insectivorous mammal, the bandicoot, the natural vectors of which are the ticks *Hæmaphysalis humerosa* and *Ixodes holocyclus* and through whom it may spread to cattle.

(ii) In cattle the disease is a mild or inapparent infection but specific antibodies are formed in the serum and can be detected. The flesh and hides of cattle are infectious, the latter through the shed fæces of infected cattle ticks.

(iii) The cattle ticks *Boophilus* and *Hæmaphysalis binspinosa* becomes infected from feeding on infected cattle and their fæces infect the cattle hides and the atmosphere as dust.

(iv) Man becomes infected as a rule through inhalation of infected dust, less commonly by direct contact with infected flesh and hides, or by the bite of an infected tick. The disease in man is essentially occupational for those who work with cattle. Man is also liable especially to laboratory infection.

(v) Serologic identity exists between *R. burneti* and the American X strain and there is a close analogy in their epidemiology.

AMERICAN STUDIES

In the spring of 1935, shortly before the Australian "Q" Fever investigation commenced, Davis and Cox [20] in America isolated a filter-passing agent from wood ticks (*Dermacentor andersoni*), the classic vectors of Rocky Mountain spotted fever. These ticks had been collected in the Nine Mile Creek Area of Montana and from them was established in guinea-pigs the Nine Mile Creek strain of the virus.

Working with this strain, Cox [21 and 23] identified the agent as a Rickettsia which, because of its extreme filtrability he named *Rickettsia diaporica* and about the same time, Parker and Davis [22] demonstrated its hereditary transmission among infected ticks.

In 1938, Dyer [24] reported the first human case, apparently a laboratory infection, in a member of the staff of the National Institute of Health.

Washington. A strain of this was established in guinea-pigs (X strain) and in a series of cross-immunity experiments on animals which followed it was noted that positive cross-immunity existed between the American X strain and that of "Q" fever, subsequent studies confirmed this relationship, Dyer [25]. It will be recalled that similar results had been noted in Australia (Brown and Freeman [9]).

In the spring of 1940 an explosive outbreak occurred among the staff of the National Institute of Health, Washington, where strains of the Australian and American rickettsia were maintained. Fifteen people were affected and X-ray examination of the chest revealed an underlying pneumonitis which otherwise might have been missed, Hornibrook and Nelson [26].

From three of these cases a rickettsia was isolated identical with that of "Q" fever. Dyer, Topping and Bengston [27] and the authors drew attention to the similarity in epidemiology of the Australian and American infections and to the numerous outbreaks of similar atypical pneumonias reported in American literature (Bowen [28], Allen [29], Bock [30], Reimann [31], Smiley and Showacre [32], Murray [33], Kneeland and Smentana [34], Longcope [35]). Finally they comment "It seems from these reports that there is a disease or diseases, widespread in geographic distribution, which conforms clinically to the disease which occurred in 1940. The ætiological agent in our outbreak has been isolated and identified but it is a matter of conjecture whether or not the other cases may have a similar ætiology."

Bengston [36] in a further series of cross-immunity experiments confirmed the close identity between the Australian "Q" fever and what Cox [37] now suggested should be called American "Q" fever. It was not, however, until the spring of 1941 that the first natural human infection was reported (Hesdorffer and Duffalo [38]). The patient, a male had recently been cutting trees in Montana.

While these events were taking place in America, an influenza-like epidemic descended upon war-torn Greece and Italy. Between 1941 and 1944 a heavy toll was taken of the German occupation troops, doubtless due to their relative lack of immunity.

The disease endemic in Greece was known to the Germans as "Balkan grippe," Imhauser [39], the ætiological agent being isolated in 1944 (Hertzberg [40]). Its distinguishing features were: (a) A duration longer than influenza; (b) pulmonary involvement; (c) the localized character of the incidence; (d) the very high attack rate; (e) the absence of associated minor respiratory diseases.

It was also to attack the Allied armies in Greece and Italy where for some time it was mistaken for a primary atypical pneumonia. Following discussions in 1944 between the American and British Medical Authorities, an intensive investigation under American auspices was commenced in 1945 the broad outline of which will now be given (Robbins and Ragan [41], Robbins, Gauld, and Warner [42], Robbins, Rustigian, Snyder and Smadel [43], Robbins and Rustigian [44], Feinstein, Yesner, and Marks [45]).

Shortly after the investigation had commenced, Caminopetros in Greece

informed the American Authorities that he had a strain of the "Balkan grippe" virus in guinea-pigs. He had obtained this from an outbreak in Athens during the occupation. A strain of this virus established in America was subsequently identified as a strain of *R. burneti* ("Balkan grippe" strain) [48]. During the investigation among Allied troops over 1,000 cases were detected in the eight months period November 1944 to June 1945 and it would seem these represent but a fraction of the actual incidence. The great bulk of the reported cases, 968, occurred in nine well-defined epidemics (Table I).

TABLE I.—INCIDENCE OF EPIDEMIC "Q" FEVER AMONG ALLIED TROOPS IN MEDITERRANEAN AREA

CORSICA	I	Corsica	December 1944	American 85
GREECE	II	Athens	Jan./Feb. 1945	British 40
ITALY	III	Pagliana	Nov./Apr. 1945	American 54
	IV	Pagliana	Mar./Apr. 1945	" 34-47
	V	Pagliana	April 1945	" 266
	VI	Belvedere	Feb./Mar. 1945	" 53
	VII	Sassaleone	Feb./Mar. 1945	" 34
	VIII	Malcesine	Jan. 1945	" 34
(b)	IX	Grottaglie	May/June 1945	" 368

NOTE.—(a) Epidemic broke out during and after evacuation from Greece to Italy.
(b) Epidemic broke out *en route* from Italy to America and continued for some weeks later.

The epidemics will not be considered individually but such as exemplify the basic epidemiology of the disease will be reviewed.

NORTHERN ITALIAN INCIDENCE

Of the nine epidemics referred to in Table I, six occurred in Northern Italy in the spring of 1945 and account for 475 cases. With the exception of 45 of these cases from Malcesine in the Po Valley, all the others were confined to the three neighbouring hill localities of Pagliana, Belvedere and Sassaleone in the Apennine hills between Florence and Bologna. Billeting was mainly in farmhouses, barns, etc., typical examples of which are those described at Belvedere and Pagliana by Robbins, Gauld and Warner [42]: "Most of the personnel of Headquarters Company lived and worked in requisitioned farm houses, but nine men slept in a small hay barn adjacent to the house and five others in a pyramidal tent near-by. The house, typical of the district, was built of stone and normally occupied by four families, each having a separate apartment. Each apartment consisted of a ground floor, first floor and attic. The ground floor was chiefly used for storage and sheltering livestock. The main family living and sleeping quarters were on the first floor while the attic served as additional storage space for grain and various odds and ends.

"While the troops occupied the building, the animals housed on the ground floor were left undisturbed. These included cattle, horses, pigs, sheep and

chickens. As pets there were several cats and dogs while rats and mice were numerous throughout the house and outbuildings.

"The most noticeable animal life in the vicinity, however, was the many pigeons which nested in the hay barns, outbuildings and the attic of one of the apartments occupied by the officers of Headquarters Company. These pigeons also had free access to the other attics as was evidenced by droppings and feathers."

The incidence of disease among these troops in relation to quarters occupied by them is significant. The following figures indicates percentage of occupants affected: Attic 44 per cent, First Floor 23 per cent, Ground Floor 32 per cent, Hay Barns 48 per cent and Tents 0 per cent.

At Pagliana where 30 per cent of a unit were attacked between April 7 and 29 the living conditions have been described as follows: "The four companies camped in a semi-circle about a farmhouse in which the Battalion Headquarters was located and where the Headquarters officers lived. The farmer and his family remained in the house during this period. The men had pyramidal or pup tents for shelter and some slept on the ground. Some of them used hay from the barn adjacent to the farmhouse or straw from a near-by strawstack as bedding. This bivouac area was occupied until April 3.

"While in this location an intensive training programme was carried on which included the presentation of numerous training films and motion pictures. These films were shown in the loft of the barn adjacent to the farmhouse and attendance of all personnel in the Battalion was compulsory. The loft was large enough to accommodate one company at a time and the companies attended in rotation.

"The barn was a long stone building with the hay loft extending the full length and cattle stalls beneath. The loft was partially filled with very old dusty hay on which the men sat during the showing of the pictures. In the walls of the barn were numerous holes in which pigeons nested. Some of these communicated directly with the inside of the loft and the wind blew through them carrying dust and debris from the pigeon nests into the interior of the barn.

"On inspection a number of adult and larval ticks of the species *Argas reflexes*, as well as a number of rat fleas (*Xenopsylla cheopis*), were found in the pigeon nests. In the chaff on the floor of the loft, large numbers of tiny mites of the following species were found: *Tyroglyphus longior Geravis*, *Tyroglyphus farinæ DeGeer*, *Glycyphagus domesticus DeGeer*, *Laelaps spabularia C. L. Koch* and *Cheyletus venustissimus C. L. Koch*. These insects were identified by Professor Lombardini of Florence, Italy.

"The farmhouse had three floors and the Headquarters offices and the Battalion office occupied four rooms on the top floor. On the ground floor were stalls for goats and a chicken roost. The farmer and his family lived in the rest of the house. There was ample evidence of rats and mice in the house but no insects were found. As far as it is known none of the civilians was ill."

From a number of these cases rickettsia were isolated from the blood. In the

Belvedere attack a rickettsial agent was isolated from the blood of 3 patients out of 4 examined, 1 of which is now the famous Henzerling strain.

The majority of the patients showed significant antibodies against "Q" fever in their serum and an examination of the serum of the healthy civilian population at Pagliana revealed also a high proportion of the adult population with significant titres.

The notable features in the epidemiology may be summarized as follows:

(1) An intimate relationship exists between disease incidence in man and the extent of his contact with animal life and exposure to an atmosphere vitiated by the dust from animal life and hay.

(2) There is little evidence in favour of person to person spread.

(3) Outbreaks are generally explosive in nature and localized in extent.

(4) The attack rate is very high (20 to 31 per cent).

(5) Endemic foci exist in Northern Italy.

(6) The ætiological agent is present in the blood of infected man during the earlier stages of the disease and can be readily isolated. Later in the disease complement-fixing antibodies and agglutinins appear in the blood and persist for some considerable time.

SOUTHERN ITALIAN INCIDENCE (*Grottaglie Epidemic*)

On May 15, 1945, the 449 Bomb Group Unit left Italy by sea for the U.S.A. where it arrived ten days later.

The unit, composed of 5 squadrons with an overall strength of 1,638 All Ranks, had been stationed at Grottaglie Air Base near Taranto in Southern Italy. One squadron embarked at Naples for Newport News, Virginia, while the remaining four squadrons embarked in a different convoy at Taranto for Boston, Mass.

While at sea, there developed among the five squadrons of the 449 Bomb Group an epidemic of a febrile illness associated with pneumonitis which continued for two weeks after their arrival in the U.S.A. Approximately one-third of the men in each squadron were affected, while the many other troops in both convoys remained unaffected. The more severe cases closely resembled the epidemic forms previously described, but a large number of mild and inapparent infections without respiratory symptoms were noted, which on X-ray of the chest revealed characteristic pulmonary lesions. Attempts to isolate the ætiological agent from the blood of patients were unsuccessful but antibodies in significant titre against the "Balkan grippé" strain of *R. burnetii* were present. While it is clear that the men were infected at Grottaglie Air Base prior to their departure, the mode of infection was not established. The evidence seemed to point to some extra human source and an intermediary arthropod vector. In the light of later work by Huebner *et al.* [55] and Bell *et al.* [57] on milk as a source of infection, and though assured fresh milk was

not used by the men, the remarks of the Commission of Acute Respiratory Diseases on the Grottaglie epidemic are of special interest [46]: "Such a sharply defined outbreak suggests a relatively heavy exposure during a period of only a few days. In fact the epidemic curve resembled those of a water-borne typhoid fever resulting from a single exposure."

LABORATORY INFECTIONS

Laboratory infections have been a special feature of the study of "Q" Fever (Burnet and Freeman [7], Smith, Brown and Derrick [6], Hornibrook and Nelson [26], Dyer [24]), and two such infections are reported during the summer 1945 in the study of the Mediterranean fever. 20 cases from 15th Medical General Hospital, Naples and 16 cases in the laboratory of the Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina, U.S.A., where research on its "Balkan grippe" strain was in progress. These laboratory infections served to re-emphasize past experience in Australia and America on the extreme infectiousness of the ætiological agent.

POST-WAR STUDIES

The experience of the war raised "Q" fever from the category of a medical curiosity to one of general interest and concern. The relative ease with which the ætiological agent can be isolated from the blood, the highly specific and long persistent antibodies evoked by an infection in man or animal have encouraged an extensive study of the disease.

In America numerous outbreaks of "Q" fever, as in Australia, have been reported among abattoir workers (Topping *et al.* [50], Shepard [51]), and a serological survey showed 8 per cent of abattoir workers with evidence of past infections (Strauss and Sulkin [52]). From the dust of sheep pens (DeLay *et al.* [53]), the placenta (Luoto and Huebner [54]), and the milk of infected cows (Huebner *et al.* [55]), *R. burneti* has been isolated. While butter made from infected milk was shown to be infective forty-one days later (Jellison *et al.* [56]). A series of three hundred cases of "Q" fever with three deaths was investigated in Southern California (Huebner *et al.* [55]; Bell [57]), and led to a new epidemiological concept which may be summarized as follows:

(1) Many cows have a chronic symptomless infection of the udder with *R. burneti* which are shed in milk over prolonged periods and cows' milk from many dairy herds is infected.

(2) "Q" fever incidence is related to, proximity to dairies, consumption of raw milk, and occupational exposure to cattle (cows, sheep and goats) or their fresh products. Serological surveys arranged to determine the percentage of a population with significant "Q" fever antibodies in their blood showed:

(a) Occupational

Aircraft plants 1·2 per cent, Meat packing plants 5·9 per cent, Hide and pelt works 15·6 per cent, Dairies 20·6 per cent.

(b) *Milk Consumption*

Raw milk consumers 10.7 per cent, Non-milk consumers 0.9 per cent.

- (c) Surveys of population in relation to proximity to dairies showed that percentage positive diminished as the distances from the dairies increased.

It appears in California the incidence in the Southern part of the State is due to ingestion of infected milk while in Northern California inhalation infection as in Australia and Italy is the usual route.

Elsewhere throughout the world come increasing reports of a "Q" fever incidence: Panama—Cheney and Geib [58], De Rodaniche [59]; Switzerland—Gsell [60] and Wegmann [61]; Turkey—Payzin and Golem [62]; Germany—Schulze [63]; Israel—Klopstock [64]; and in France, Spain and finally Great Britain to which latter incidence reference must now be made.

"Q" FEVER IN GREAT BRITAIN

In 1949 Stoker [65] reported that 3 cases out of 24 atypical pneumonias examined had complement-fixing antibodies in significant titres against *R. burneti*. As the cases had not been out of England their infections must have occurred in this country.

In the same year six members of the staff of the Royal Cancer Hospital, London, contracted "Q" fever under circumstances that merit special mention (Harman [66], MacCallum *et al.* [67], Marmion *et al.* [68], Stoker [69]).

In May of that year an elderly male patient was admitted to the hospital for investigation of a dysphagia possibly malignant. Eighteen days after admission he became febrile with signs of bronchopneumonia which failed to respond to antibiotics and he died twenty-nine days after admission and twelve days from the onset of his febrile illness. He was attended at death by a nurse and at the post-mortem two pathologists and the mortuary attendant were present. The post-mortem finding was: "Cerebral thrombosis and lobar pneumonia." There the matter might have ended but for the fact that seventeen to nineteen days later, the nurse, the two pathologists and the mortuary attendant went sick with a febrile complaint subsequently diagnosed "Q" fever, and *R. burneti* was isolated from one of the cases. There was no similar complaint in the staff or patients of the hospital.

An investigation of the dead man's house revealed that it was located one hundred yards from a dairy, at the back of which was a butcher's shop and a sausage-manufacturing plant. Investigation of the herds supplying the dairy resulted in *R. burneti* being isolated from the herd milk of two of the farms and complement-fixing antibodies were found to be present in the blood of some of the farm workers.

Finally it was ascertained that the dead man's wife had been mildly ill recently and her serum showed a significant titre of complement-fixing antibodies for *R. burneti*. Shortly after this epidemic, another member of the staff of the hospital and his wife contracted "Q" fever, at first thought to be

associated with the original outbreak. It transpired on investigation that both husband and wife and a third case had been present at the delivery of a cow in Devon. This cow was convalescing from an atypical pneumonia and on subsequent serological investigation showed antibodies against *R. burneti* in significant amounts. Bearing in mind the work of Luoto and Huebner [54] on placental infection, and of Huebner *et al.* [55] on milk as a source of infection, there seems little doubt how these 3 cases arose.

As regards the ætiological agent in Great Britain, two strains, a human (Christie strain) and one derived from milk (M.I. strain), have been investigated and found to conform in all essentials with the Henzerling strain.

At the time of writing extensive serological surveys are in progress in Great Britain with the object of defining endemic foci. In the meantime sporadic cases have been reported from Kent, Devon, Gloucester, Wiltshire, Oxfordshire and Denbighshire.

DIAGNOSIS

The only difficulty in the diagnosis of "Q" fever is that of remembering to consider it in all cases of obscure fever with pulmonary symptoms. A little serum early and late in the disease will provide all that is required in the diagnosis. Agglutinins rarely appear before the ninth day but are present in 90 per cent of cases by the fourth week. Complement-fixing antibodies appear seventh to thirteenth day and reach a maximum titre by the third week, thereafter they are detectable for long periods in the blood.

While titres of $\frac{1}{8}$ in agglutination tests and $\frac{1}{20}$ in complement-fixation tests are significant, it is the rise in titres that is the diagnostic criterion and therefore specimens early and late in the disease should be obtained (Rivers [70]).

CONCLUSION

There can be no doubt of the importance of this new entity in civil and military preventive medicine. Writing of the Grottaglie epidemic, Feinstein *et al.* [45] remark "It is evident that 'Q' fever must be considered as a disease of considerable military importance. Although no serious consequences resulted in the present epidemic a critical situation might have obtained if the epidemic had occurred a few months earlier. The striking power of a whole bomb squadron would have been crippled for several weeks."

BIBLIOGRAPHY

- [1] DERRICK, E. H. (1937) "Q" fever, a new entity: clinical features, diagnosis and laboratory investigations, *Med. Jn. Aust.*, **2**, 281.
- [2] BURNET, F. M., and FREEMAN, M. (1937) Experimental studies on the virus of "Q" fever, *Med. Jn. Aust.*, **2**, 299.
- [3] ———, ——— (1938) The rickettsia of "Q" fever, further experimental studies, *Med. Jn. Aust.*, **1**, 296.

- [4] DERRICK, E. H., JOHNSTON, D. J. W., SMITH, D. J. W., and BROWN, H. E. (1938). The susceptibility of the dog to "Q" fever, a preliminary study, *Aust. Jn. Exp. Biol.*, **16**, 245.
- [5] —, SMITH, D. J. W., BROWN, H. E., and FREEMAN, M. (1939) The role of the bandicoot in the epidemiology of "Q" fever, a preliminary study, *Med. Jn. Aust.*, **1**, 150.
- [6] SMITH, D. J. W., BROWN, H. E., and DERRICK, E. H. (1939) A further series of laboratory infections with the rickettsia of "Q" fever, *Med. Jn. Aust.*, **1**, 13.
- [7] BURNET, F. M., and FREEMAN, M. (1939) Note on a series of laboratory infections with the rickettsia of "Q" fever, *Med. Jn. Aust.*, **1**, 11.
- [8] DERRICK, E. H. (1940) The susceptibility of various animals to "Q" fever, *Aust. Jn. Exp. Biol.*, **18**, 409.
- [9] BURNET, F. M., and FREEMAN, M. (1939) A comparative study of rickettsial strains from an infection of ticks in Montana, U.S.A., and from "Q" fever, *Med. Jn. Aust.*, **2**, 887.
- [10] DERRICK, E. H., and SMITH, D. J. W. (1940) The isolation of three strains of *Rickettsia burneti* from the bandicoot *Isodon torosus*, *Aust. J. Exp. Biol.*, **18**, 99.
- [11] FREEMAN, M., SMITH, D. J. W., and BROWN, H. E. (1940) Surveys of human and animal sera for *Rickettsia burneti* agglutinins, *Aust. Jn. Exp. Biol.*, **18**, 193.
- [12] SMITH, D. J. W. (1940) The transmission of "Q" fever by the tick *Hæmaphysalis humerosa*, *Aust. Jn. Exp. Biol.*, **18**, 193.
- [13] —, and DERRICK, E. H. (1940) The isolation of six strains of *Rickettsia burneti* from the tick *Hæmaphysalis humerosa*, *Aust. Jn. Exp. Biol.*, **18**, 1.
- [14] — (1941) The biology of *Hæmaphysalis humerosa*. Warburton and Nuttall (*Acarina ixodidae*) in Queensland, *Aust. Jn. Exp. Biol.*, **19**, 73.
- [15] — (1941) The transmission of "Q" fever by the tick *Rhipicephalus sanguineus*, *Aust. Jn. Exp. Biol.*, **19**, 133.
- [16] — (1942) The transmission of "Q" fever by the tick *Ixodes holocyclus* (with notes on tick paralysis on bandicoots), *Aust. Jn. Exp. Biol.*, **20**, 213.
- [17] — (1942) Experimental infection of the ticks *Hæmaphysalis bispinosa* and *Ornithodoros* sp with *Rickettsia burneti*, *Aust. Jn. Exp. Biol.*, **20**, 295.
- [18] DERRICK, E. H., SMITH, D. J. W., and BROWN, H. E. (1942) The role of the cow in the transmission of human "Q" fever, *Aust. Jn. Exp. Biol.*, **20**, 105.
- [19] — (1944) The epidemiology of "Q" fever, *Jn. Hyg.*, **43**, 357.
- [20] DAVIS, G. E., and COX, H. R. (1938) A filter-passing infectious agent isolated from ticks. I, Isolation from *Dermacentor andersoni* reactions in animals and filtration experiments, *Pub. Health Rep.*, **53**, 2259–2282.
- [21] COX, H. R. (1938) A filter-passing agent isolated from ticks. III, Description of the organisms and cultivation experiments, *Pub. Health Rep.*, **53**, 2270–2276.
- [22] PARKER, R. R., and DAVIS, G. E. (1938) A filter-passing agent isolated from ticks. II, Transmission by *Dermacentor andersoni*, *Pub. Health Rep.*, **53**, 2267.
- [23] COX, H. R. (1939) Studies of a filter-passing infectious agent isolated from ticks. V, Further attempts to cultivate in cell free media. Suggested classification, *Pub. Health Rep.*, **54**, 1822.
- [24] DYER, R. E. (1938) A filter-passing infectious agent isolated from ticks. IV, Human infections, *Pub. Health Rep.*, **53**, 2277–2282.
- [25] — (1939) Similarity of Australian "Q" fever and a disease caused by an infectious agent isolated from ticks in Montana, *Pub. Health Rep.*, **54**, 1229–1237.
- [26] HORNIBROOK, J. W., and NELSON, K. R. (1940) An institutional outbreak of pneumonitis. I, Epidemiology and clinical studies, *Pub. Health Rep.*, **55**, 1936–1944.
- [27] DYER, R. E., TOPPING, N. H., and BENGSTON, I. A. (1940) An institutional outbreak of pneumonitis. II, Isolation and identification of the causative agent, *Pub. Health Rep.*, **55**, 1945–1954.

- [28] BOWEN, ALBERT (1935) Acute influenza pneumonitis, *Amer. Jn. of Roentgenol.*, **34**, 168.
- [29] ALLEN, WILLIAM H. (1936) Acute pneumonitis, *Ann. Int. Med.*, **10**, 441.
- [30] BOCK, ARLIE V. (1938) Clinical observations, complications, treatment of oc. resp. tract infections in the atypical pneumonia, *Ann. Int. Med.*, **12**, 317.
- [31] REIMANN, HOBART A. (1938) An acute infection of the respiratory tract with atypical pneumonia, *Journ. Amer. Med. Assoc.*, **3**, 2377.
- [32] SMILEY, D. F., SHOWACRE, E. C., LEE, W. F., and FERIS, H. W. (1939) Acute interstitial pneumonia, *Amer. Jn. Med. Anlia*, **112**, 1901.
- [33] MURRAY, E. (1940) Atypical bronchopneumonia of unknown ætiology, *New Eng. Jn. of Med.*, **222**, 565.
- [34] KNEELAND, Y., and SMENTANA, F. (1940) Current bronchopneumonia of unusual characters and undermentioned ætiology, *Bull. Johns Hopkins Hosp.*, **67**, 229.
- [35] LONGCOPE, W. T. (1940) Bronchopneumonia of unknown ætiology (Variety X): a report of 32 cases with 2 deaths, *Bull. Johns Hopkins Hosp.*, **67**, 268.
- [36] BENGSTON, I. A. (1941) Immunological relationship with the Australian and American "Q" fever, *Pub. Health Rep.*, **56**, 272.
- [37] COX, H. R. (1940) *Rickettsia diaporica* and American "Q" fever, *Amer. Jour. Trop. Med.*, **20**, 463-469.
- [38] HESDORFFER, M. B., and DUFFALO, A. (1941) American "Q" fever, report of a probable case, *Jour. Amer. Med. Assoc.*, **166**, 1901-1902.
- [39] IMHÄUSER, K. (1943) Über das Auftreten von Bronchopneumonien im Südostraum. *Ztschr. F. Klin. Med.*, **142**, 488.
- [40] HERTZBERG, K. (1949) *Zbl. Bakt.* (1 Abt., Orig.), **153**, 125.
- [41] ROBBINS, F. C., and RAGAN, C. A. (1946) "Q" fever in the Mediterranean Area; report of its occurrence in Allied troops. I, Clinical features of the disease, *Amer. Jn. Hyg.*, **44**, 6-22.
- [42] —, GAULD, R. L., and WARNER, F. B. (1946) "Q" fever in the Mediterranean Area; report of its occurrence in Allied troops. II, Epidemiology, *Amer. Jn. Hyg.*, **44**, 23-50.
- [43] —, RUSTIGIAN, R., SNYDER, M. J., and SMADEL, J. E. (1946) "Q" fever in the Mediterranean Area; report of its occurrence in Allied troops. III, The ætiological agent, *Amer. Jn. Hyg.*, **44**, 51-63.
- [44] —, — (1946) "Q" fever in the Mediterranean Area; report of its occurrence in Allied troops. IV, A laboratory outbreak, *Amer. Jn. Hyg.*, **44**, 64-71.
- [45] FEINSTEIN, M., YESNER, R., and MARKS, J. L. (1946) Epidemics of "Q" fever in troops returning from Italy in the spring of 1945. I, Clinical aspect of the epidemic at Camp Patrick Henry, Virginia, *Amer. Jn. Hyg.*, **44**, 72-81.
- [46] Commission on Respiratory Diseases (1946) Epidemics of "Q" fever among troops returning in the spring of 1945. II, Epidemiology Studies. *Amer. Jn. Hyg.*, **44**, 88-102.
- [47] Commission on Acute Respiratory Diseases (1946) Epidemics of "Q" fever among troops returning from Italy in spring of 1945. III, Ætiological studies, *Amer. Jn. Hyg.*, **44**, 103-109.
- [48] Commission on Respiratory Diseases (1946) Identification and characteristics of the "Balkan grippe" strain of *R. burneti*, *Amer. Jn. Hyg.*, **44**, 110-122.
- [49] Commission on Respiratory Diseases (1946) A laboratory outbreak of "Q" fever caused by the "Balkan grippe" strain of *R. burneti*, *Amer. Jn. Hyg.*, **44**, 123-157.
- [50] TOPPING, N. H., SHEPARD, C. C., and IRONS, J. V. (1947) *Jn. Amer. Med. Assoc.*, **133**, 813.
- [51] SHEPARD, C. C. (1947) *Amer. Jn. Hyg.*, **46**, 185.
- [52] STRAUSS, E., and SULKIN, S. E. (1948) *Proc. Soc. Exp. Biol. N.Y.*, **67**, 139.
- [53] DELAY, P. D., LENETTE, E. H., and DEORME, E. (1949) *Amer. Jn. Trop. Med.*, **29**, 527.
- [54] LUOTO, L., and HUEBNER, J. (1950) *Pub. Health Rep.*, **63**, 214.

- [55] HUEBNER, R. J., JELLISON, W. L., BECK, M. D., PARKER, R. R. and SHEPARD, C. C. (1948) *Pub. Health Rep.*, Washington, **63**, 214.
 - [56] JELLISON, W. L., HUEBNER, R. J., BECK, M. D., PARKER, R. R., and BELL, E. J. (1948) *Pub. Health Rep.*, Washington, **63**, 712.
 - [57] BELL, J. A., BECK, M. D., and HUEBNER, R. J. (1950) *Jn. Amer. Med.*, **142**, 868.
 - [58] CHENEY, G., and GEIB, W. A. (1946) *Amer. Jn. Hyg.*, **44**, 158.
 - [59] DE RODANICHE, E. C., and RODANICHE, A. (1949) *Amer. Jn. Hyg.*, **49**, 67.
 - [60] GSELL, O. (1948) *Schweiz. med. Wschr.*, **78**, 1.
 - [61] WEGMANN, T. (1948) *Schweiz. med. Wschr.*, **78**, 529.
 - [62] PAYZIN, S., and GOLEM, S. B. (1948) *Turk Ijiyen ve Tecrubu Byoloji Dergisi Ankara*, **8**, 116.
 - [63] SCHULZE, H. A., and GAULD, R. L. (1947) Probable outbreak of "Q" fever in Munich, Germany, *Med. Bull., Chief Surgeon, European Command*, **4**, 20.
 - [64] KLOPSTOCK, A., KLOPSTOCK, E., and ROSENKRANZ, G. (1949) *Harefuah*, **37**, 1.
 - [65] STOKER, M. P. G. (1949). Serological evidence of "Q" fever in Great Britain. *Lancet*, **1**, 178.
 - [66] HARMAN, J. B. (1949) "Q" Fever in Great Britain; clinical account of 8 cases, *Lancet*, **2**, 1028-1030.
 - [67] MACCALLUM, F. O., MARMION, B. P., and STOKER, M. P. G. (1949) "Q" fever in Great Britain, *Lancet*, **2**, 1026.
 - [68] MARMION, B. P., and STOKER, M. P. G. (1950) "Q" fever in Great Britain; Epidemiology of an outbreak, *Lancet*, **2**, 611.
 - [69] STOKER, M. P. G. (1950) "Q" fever in Great Britain. The causative agent, *Lancet*, **2**, 616-620.
 - [70] RIVERS, T. M. Ed. (1948) *Viral and rickettsial infections of man*. Philadelphia: J. B. Lippincott Company.
-

At Random

PSYCHIATRIC WASTAGES

IN the opening article in this number, criticizing Military Psychiatry in World War II, Captain L'Etang produces some extremely instructive and thought-producing facts and comments which may well serve and, we think, should definitely serve as lessons for present-day training and for the organization and directives concerned with man-power control of any future war.

As a nation we cannot possibly afford and, in fact, no nation can afford the very high proportion of losses of men from active divisions which are shown in this article. The fact that the British Army of 1945, containing 2,931,000 men; had less than half the number of active overseas divisions—thirty divisions—compared with the British Army of 1918, containing only 30 per cent more men, 3,818,000, with 66 overseas active divisions indicates that there was some very marked difference in the use of the available man-power and that there was a totally disproportionate loss of serviceable men in that second war. The American Army following the same policy as ourselves, namely screening and removal during selection and training of their forces, lost from their overseas formations 315,000 psychiatric cases between 1941 and 1945.

In the so-called First World War from our vast armies, composed of some seven to eight million men, for whom the initial examination and selection had been often perfunctory and far less psychiatrically controlled than in the second war, only some 100,000 men were pensioned for psychiatric disorders and of these *all had served on an average eighteen months in an active theatre*. As a contrast the memories of many with personal experience of medical administration and control of man-power in the second world war will recall the continual stream of wastages and the very short active service period of many men.

In previous wars, and it would appear that during the past 2,000 years there has never been an interval of more than two years without a war, psychiatric disorders certainly never received the magnified attention which they received in the '39-'45 War and yet wastages from mental disorders were hardly noticeable and certainly received no special comment even when medical science had advanced to a reasonably discerning stage in the wars of the past forty years. Discipline, *esprit de corps*, compulsion and possibly patriotism may all have been the more potent factors in the absence of or possibly merely non-recognition of such disorders.

But it is clear from the comments and quoted extracts given in this article and it is still the opinion of many with any experience of medical administration during the Second World War that too much stress was laid on the psychiatric aspect of the individual both in the early stages in the policy of selection and in the later periods during active service anywhere or perhaps more particularly in the preparation for some special active operation. Too much attention was focused on the *possible* psychiatric disorder and the risk of a breakdown, with the result that thousands were screened out of such active duties who might and should have been used even for a short period and so been of some greater value to the service as a whole.

In these comments we realize fully that we may well incur the wrath and facile criticism of the outraged psychiatrist; but, as Captain L'Etang has shown from his extracted quotations, Psychiatrists, and many of them very eminent Psychiatrists, themselves have agreed that in some respects the policy was wrong, that too much stress was placed on *possible* breakdown, that too little use was made of *possibly* valuable man-material; and that, by drawing too much attention to these *possible* disorders, the opportunity was given to many to exaggerate or even manufacture psychiatric complaints and conditions. The examples quoted in the article clearly show how much man-material was wasted.

Far be it from us to decry the whole work of psychiatrists in relation to troops either in the selection stages or in the turmoil of active operations. The sound, broad-minded, experienced psychiatrist is one of the R.M.O.s and Commanding Officer's most valuable allies; particularly in periods of extreme stress, in isolated jungle warfare, in the miserable conditions of winter mud, in the initial battle-shock for inexperienced troops, in the disorder of retreat and in the constrictions of siege. In such conditions the psychiatrist has often proved to be of untold value.

It was the policy of that Second World War which appears to have been wrong, which drew too much attention to *possible* disorders and which *actually* wasted large numbers of men who could and should have served a more useful purpose than that to which they were diverted.

Under modern conditions in any national war, not merely a restricted international affair, and certainly in any future World War the nation, the whole nation, will be involved, every individual will count and every individual must perforce be employed somewhere or other in the war effort or must, if incapable, be in the care of and a burden to some portion of the nation. We have not yet reached the stage when the totally unfit and incapable are eliminated or liquidated to avoid further trouble.

That being so, what is the relative value of screening possible psychiatric disorders within the Services out of the actual fighting areas into the support or base areas and out of the Services into "civilian" control and employment?

The Nation must use every available asset and cannot afford to carry unfits and psychiatric cases who or which might still be of use somewhere. The

possible psychiatric case in an active fighting unit may still and, in quite a large proportion of cases, will actually give valuable service where he is. If removed to a non-active area he has to be replaced and although he may be suitably employed elsewhere his attention is focused on his condition and he deteriorates as a national asset. If removed to civilian employment his military training is lost, he may have to be re-trained in civilian work and above all he becomes one more incubus to the harassed G.P. or Works Medical Officer who are already overworked and understaffed and, moreover, is no longer under any real disciplinary control. In any future national war, when the nation's very existence will be at stake, every individual will be needed and he or she must be used even at risk of individual breakdown, used to the maximum extent without soft-hearted pandering to possibilities. "*Services*" or Civilian effort will all be one; the individual must be used where and for what he or she is trained, used to the best advantage and not thrown from the "*Services*" into Civilian control and care where each may be an even more severe national handicap and a complete psychiatric wastage.

This means that for present training and for future war a change is needed from that of the last war in the viewpoint of the Services as regards the use of the man- (and woman) material available for their use. With a conscriptive National Service all types and conditions of bodies will be available and in the stress of a national war will have to be used and used to the best advantage. The policy of selection should therefore now serve two purposes: the selection of first-class material for use in the fighting or essential critical services or the key-portions of those services and the grading of other material, including the psychiatric types, in accordance with the suitability of that material for various grades of work or responsibility in any type of unit or area of action. Consequently the selectors who carry out this policy must be or should be highly skilled with experience and a comprehensive knowledge of the range of work to which the selected material may be allotted. The instructions and directives which guide the selectors should include comprehensive details of how and where the less fit material can be used.

Pulheems give a very wide grading of each individual: the subsequent selection and allotment of selected individuals to duties best suited to each is the point at which success or failure of the system will occur and wastages be avoided.

The Psychiatrist included in this selector group must equally be experienced and with a knowledge of how best use can be made of the doubtful individual.

The examples quoted in the article show clearly that this factor was fully recognized by many prominent Psychiatrists towards the end of the last great war. Future policy should therefore be directed to ensuring that the fullest use is made of EVERY TRAINED INDIVIDUAL and that he or she is not relegated through an over-zealous sympathy with the individual and because of a possible breakdown of that individual to the stream of psychiatric wastage.

Travel and History

CRUISE OF THE "MARCUS AURELIUS "

BY

Colonel R. V. FRANKLIN
Royal Army Medical Corps

OWNED by a regular officer of the Corps, "Marcus Aurelius" is a 37' sloop of 1915 vintage with a modern auxiliary engine installed. Her accommodation consists of two pipe cots in the forecabin, one used exclusively for storing sails, the other reserved for the use of Barn, in other words my young son Bill (Barnacle). The main saloon has two good spring berths. Aft of this is the galley with calor gas stove and sink. From here a ladder leads to the deck and cockpit, and to one side of the ladder is a door entering a luxurious Owner's cabin consisting of two berths and washbasin. The engine room is reached by way of the cockpit. The sail plan is easy and consists of a gaff mainsail 400 sq. ft. and foresail. A dinghy is carried on one side of the deck.

On August 23 the crew mustered at Tayport where "Marcus" has her mooring and weighed anchor. They consisted of, besides the Skipper, Tommy, one leg, the best cook ever and the most agile man aboard; Jimmy, chief engineer, keen, inexperienced in deep sea sailing; and Barn, aged 14, experienced, keen and knowledgeable. The idea was to sail to Granton and there enjoy the entertainments offered for the Edinburgh Festival. Tommy would then depart and the Skipper's wife, Gin, and his daughter, Toons, come aboard and continue the trip.

It was blowing right down the Firth and at the bar one member of the crew wanted to return but the Skipper decided to hold on and all was well. For off St. Andrews the wind died down rapidly, and the rest of the journey had to be done under engine so that we finally picked up a mooring in Granton at 0530 hours on the 24th, that is fourteen hours after setting sail. The time between August 24 and 26 was spent in visiting many shows, including the Tattoo, which was most impressive. Work on board was not neglected and sandbags were collected and filled with sawdust to act as bumpers going through the locks of the Forth and Clyde canal.

It was 0930 hours that we set sail again and with a fair breeze made up the Forth and passed under the north span of the bridge. It may be of interest to know that there are only two spans, North and South, under which a ship may pass. We had to find the entrance to the Carron river, by Grangemouth, for it is about a mile up this river that the Forth and Clyde canal commences.

As there are huge mud banks on each side, care must be taken to enter only on a rising tide.

The Forth and Clyde consists of some 39 locks and 7 foot-bridges. The locks and bridges must be worked on one side by one of the crew; in fact it was found that most of these had to be operated by the crew as the keepers were not to be found. Two stout crowbars are essential for a trip such as this. Unless the water is let in slowly the boat careers around in the lock and may damage herself so it was found essential to follow a set drill. The Skipper steered near the lock gate, Jimmy jumped off and ran aft to where the Skipper threw him a warp which he fastened, thus stopping her movement forward. He then ran forward and Tommy threw him the bow warp which secured her from lateral movement, Barn and Jim then worked the locks. It was very tiring work as the locks generally are close together, but after the first 16 locks there is a 4-mile stretch without locks and after the 19th lock there is a 16-mile stretch. Power road and rail bridges generally were good at opening up, if one gave warning of approach by liberal use of the foghorn. It is a strange feeling to be afloat surrounded by normal activities of farm life.

We took two days to do the trip, it rained most of the time. The locks are closed at 2200 hours and not opened at all on Sundays so that if it is necessary to stop at all care should be taken to select a quiet spot away from habitation as gangs of children can be a great pest. The Skipper at one place tried to turn the destructive activities of these children into constructive channels by letting them paint the decks, but it turned out to be destructive. With all hands on the job the question of who would get a cup of tea or cook a hot meal was a problem which in this case was solved by an official visit from the D.A.D.A.H., who turned out to be a most excellent cook, and who saw us through to the end of the canal at Bowling. The sea-basin at Bowling opens out into a large Harbour which leads into the Clyde river. This is narrow, extremely well buoyed and most interesting, as it is a very busy shipping lane and most skippers of ships seemed to like the look of "Marcus" under sail and gave us a friendly wave from the bridge. We took care to be on the fringe of the channel, it would be a different question if we took up the fairway.

We left Helensburgh to starboard, and Greenock and Gourock to port, and altering course with a fair wind and calm sea carried on down the channel leaving the Clough light to port, Hunter Quay on our starboard and turned in past Rothesay to anchor at Port Bannertyne. It is a quiet well-sheltered anchorage on the east of the Kyles of Bute and it was here that Tommy departed and Gin and Toons arrived on August 29. It takes forty-eight hours to go through the Forth and Clyde canal comfortably, if one can ever be comfortable going through that canal. The dues came to £2 4s. 7d. Just fifteen minutes after the arrival of wife and daughter we upanchored and, with a fair light breeze, set off around the Kyles and up Loch Fyne. Coco, a year old dachshund, also became part of the ship's crew at Port Bannertyne. We had a perfect sail, and leaving Port Tarbet on our starboard we reached

Ardrishaig at 2045 hours, that is, after seven hours' sailing. It is here that the Crinan canal commences, so we at once entered the lock and tied up alongside a large Dutch barge for the night. The owner of the barge invited us aboard. He lives with his family in great luxury on board and if he is as kind to all owners of boats passing through the canal as he was to us he must have very many good friends. The trouble is that when one's wife sees the Aga stove, the long bath, and the wardrobe space in such a ship she is less inclined to appreciate the stirring qualities of "Marcus." The skipper of the Dutch barge and myself got together over charts next morning and I got a line on our course for the future. In glorious weather and to the envy of a couple of other owners who were returning from their cruise, we cast off at 1100 hours on August 30, and under engine made up the Crinan canal. Altogether this canal has every advantage over the Forth and Clyde. The scenery is beautiful all the way, no towns are passed through, there are only 14 locks, and all are well oiled and attended by two keepers who were found to be always at their posts. It was with a feeling of elation that at 1500 hours we shot through the Crinan basin and out to sea. It was a glorious day. The sea was calm and ruffled by a light breeze. We set our course for Dorus More, which is a gap in some islands a few miles from Crinan and clearly visible. The enclosed waters, the surrounding hills and islets made it a very pretty scene indeed. We sailed rather off the beaten track and made for the island of Shuna, where we anchored in the loveliest little bay north of the island in beautiful clear water a biscuit's throw from the land.

To one of the few houses on the island—in fact a castle—the family and Coco made their way next morning and were rewarded by the kindest hospitality, returning loaded with milk, bread and eggs. Leaving the milk can by the stone pier to be collected by the farm folks later on in the day, we set out under engine on a course which was to take us through the Cuan Sound into the Firth of Lorne. The instructions concerning the passage through this Sound were misread by the Skipper with the consequence that he tried to go through against the tide with the result of the really frightening experience of "Marcus" being flung all over the place without gaining an inch, added to which a rock in midstream just submerged, was another hazard. Realizing defeat quickly he turned ship and anchored in sheltered water in a delightful bay where all had lunch whilst waiting for the tide to turn.

In about two hours we were able to try again and this time it was a very different question for we shot through at the rate of knots. Now, having the tide with us and to restore his self-respect, the Skipper decided to take the narrow channel of Easdale Sound between Seil Island and the mainland. The tide was out and it was very narrow, the mudbanks seeming to come right down to "Marcus's" sides so that it seemed impossible for her five feet of draft to float, but float she did and once through we had no difficulty in making a perfect passage to Kerrera Sound and Oban, in fact so smooth was the sea that the family climbed into the dinghy and took several shots with the cine camera.

Whenever we come to think of an anchorage there is always an argument between Barn and Gin. The former is only interested in deserted and out of the way islands and rugged coasts, whilst Gin has continuously to think of stores to feed us, so it was for this reason that we picked up a mooring at Oban. Barn and the Skipper sharing the anchor watch whilst the remainder shopped ashore. There was much traffic of motor and steam craft and it was really most uncomfortable where we were; so, as soon as the folk returned from shopping at 5 p.m., we set off again bound for Dunstaffnage Bay which lies at the entrance to Lock Etive and is by Connel Bridge. As we entered this lovely sandy and sheltered bay we came abreast of another boat sailed and lived on by a man and his wife, both well into their sixties. The Skipper could not resist pointing out to his wife that there seemed many years of sailing still to be expected.

Next morning we found that the wind had freshened, so at midday when the tide suited we set sail and decided to go south of Lismore Island and leave it to starboard as the channel is narrow and difficult to negotiate when leaving the island to port. We had a long and rather rough sail which became rather worse as the wind got stronger, so that we had to take in a reef. Rain squalls came on, blotting out the landscape and leading marks, so it was with relief that we made the shelter we'd previously selected on the chart which was at Kentallen Bay at the entrance to Loch Leven. This is perfectly sheltered from any but an east wind and there is deep water (10 fathoms), right up to the rocky shore. It was rather lovely, very sparsely populated, and the water was gin clear. One lesson in seamanship I re-learned here was to ensure that plenty of anchor cable was out because in the very early hours I had to let out more as she was dragging her anchor. Next morning it was not so fine as before, but, the tide suiting at 7 a.m. to pass through the notorious Corran Narrows, we got under way at 6 a.m. and had no difficulty in shooting through the falls into Loch Aber and at 10 a.m. picked up moorings at Fort William. During the two days we spent here having baths, shopping, and at first painting decks, the weather deteriorated, strong to gale force winds blew, and it rained a lot. Time was limited, however, so forty-eight hours after our arrival we set off for the entrance to the Caledonian Canal which is about 2 miles north-east at Corpach. It was with some feelings of relief that we got into the calm waters and shelter of the canal.

Unlike the other two canals which we had been through, the Caledonian Canal seemed huge and the lock gates are worked by a team of men working a capstan, rather similar to those used for weighing anchor in old sailing ships. The ship's crew are not supposed to lend a hand on shore and indeed it takes all hands in caring for the ship in huge locks especially when the wind is blowing. Almost immediately there are 9 locks together raising the level of the water many feet, this is called Neptune's Staircase and in our case took nearly two hours to get through. By about 3 p.m. we had passed into Loch Lochy and on the west side found a well-sheltered anchorage in Achnarry Bay where we stayed for the night in shallow but sufficient water

and without having to bother about the rise and fall of the tide. Here Took and Barn bathed and took the dinghy exploring.

Next morning, after a leisurely breakfast, we set the storm trysail as it was blowing hard and proceeded between high hills up to Laggan Lochs which divide Loch Lochy and Loch Oich. The latter loch is to my mind the nicest of the three. It is narrow, dotted with many islands, and indented with bays. Time, however, did not permit delay so we pushed on and in due course tied up at the pier on the west side of the canal at Fort Augustus, just by the entrance to Loch Ness. A monastery just across on the other side of the canal rather lent enchantment to our surroundings by the tolling of bells and ringing of the angelus. We stayed here only long enough to obtain stores, petrol, etc., and then set out to find a quieter anchorage. At Cherry Island to the N.W. of Loch Ness by Inchnacarden we found an ideal place and there had a good night. The children spent the rest of the day doing the usual things—bathing, fishing, and exploring in the dinghy. Next morning was wet and blowing, so again we up with the trysail and, as we felt that we had a little time on hand, we thought we would spend an extra day in Loch Ness and made for Urquhart Bay. On the way there a R.N. patrol ship passed us on the far side of the loch but as it was wet and we were not dressed we paid little attention to her. She, however, turned about at the bottom of the loch and came up close behind us, passing us to port. This time we were ready, and, besides having our club burgee flying, Barn was able to dip our blue ensign in salute, which was immediately acknowledged.

One of the nicest anchorages is to be found in Urquhart Bay and we crept in using the lead line till we found just enough water and were snug, snug that is if the wind held from the direction it was just then blowing. It did not but turned completely round the compass and blew in on us from the opposite direction. Being in enclosed waters, however, the sea remained smooth and my only anxiety was that I might ground as I had not left much water under me. All that night it blew hard, and the wind once again completely changed. I got up a few times to ensure that she was not dragging and so was glad to see the dawn. We meant to get off early but when taken ashore for her morning walk Coco found a rabbit and chased it down a hole and no amount of coaxing could get her out. The children defeated came back aboard to find an angry Skipper anxious to get under sail, so Gin went off and managed to detect the tip of Coco's tail and sinking her arm in the hole managed to haul her out. We got away at last and under sail ran up and entered Loch Boichfour, a pleasant small loch connecting Loch Ness with the canal at its north-eastern end. From here we had a pleasant run, finally tying up at the sea-basin at Muirtown, which is hard by Inverness.

The Caledonian canal is about 60 miles in length, of which 38 miles are through Lochs Lochy, Oich and Ness. There are 15 locks between Corpach and the summit at Laggan, 100 feet above sea-level, and 14 locks between this and Clachnaharry, the Inverness entrance. Dues came as a bit of a shock, being about £4 10s. I forgot to mention that the dues for the Crinan canal

were the same as for the Forth and Clyde though this canal is but 9 miles long and has only 14 locks. The Forth and Clyde is 33 miles in length.

Next day, ten days after joining Gin, Took and Barn departed by train from Inverness for Tayport. Jimmy also departed as his leave was up and so the Skipper was left on his own to work out the problem of getting "Marcus" via the Moray Firth around the Aberdeen coast to her moorings. He had made tentative arrangements which bore some fruit, as an experienced and keen hand arrived that evening to sail around with him. Two were, however, insufficient for comfort, so, knowing that the R.E. usually produced keen sailors he applied to the O.C. T.R.R.E. at Elgin who, though keen himself, could not manage to come but sent along a capable young sapper subaltern who had done small open boat sailing before and who incidentally is the son of a senior officer in the R.A.D.C. Though this was just sufficient crew the Skipper could not refuse another piece of luck when an old friend and retired officer of the Corps living in Inverness came along to see him accompanied by his young son Alastair, aged about 20. Alastair was free, willing, and, with some encouragement, father and mother were persuaded to entrust their only son into the hands and craft of the Skipper, and so with a full crew on September 9 with two reefs we set off from Inverness, leaving the sealock about 1100 hours and into the Beaully Firth. Here we found the wind lighter and so shook out our reefs and had an excellent sail with calm sea and following wind all day. Off Buckie a decision had to be made whether to carry on all night or try and make harbour, and, as the crew were all new to the boat and had no night sailing before, it was decided, and wrongly so, to make harbour.

Colin, the experienced hand, made an excellent job of piloting us into Buckie in the dark. There are three rocky islands just outside called the Mucks—Outer, Inner and Middle—and these have been the cause of many a mishap before now. Once in the harbour we got in touch with the most efficient and amiable and helpful harbourmaster who saw us snug for the night and could not do enough for our comfort without thought of even collecting any harbour dues. The tide being suitable we made a start at 0600 hours next morning and the wind holding we had a perfect sail down quite near the coast passing Banff, MacDuff and Fraserburgh and spotting on the chart and on land many a tiny hamlet and fishing village. Alastair had felt a little seasick at first but had got over this and was now to prove his worth, for though inexperienced he was keen on anything and could now go below in any kind of weather and produce masses of food. It may be said that he managed to put most of it away too. Off Rattray Head the wind headed us, the tide was foul and the ship's log read as follows:

1400 hrs. Rattray Hd. abeam. 1430 hrs. Rattray Hd. abeam. 1500 hrs. Rattray Hd. abeam, and so on until 1730 hrs. when with the aid of lots of engine and the wind shifting at last we managed to leave it behind and at 2000 hrs. crept into Peterhead Harbour; another mistake as things turned out, we ought to have gone on. If we had not gone into Buckie we would have had a fair ride around Rattray Head and saved all that time and nonsense which we

experienced. A golden rule of sailing is that if the wind and tide are favourable, press on. We were piloted into the inner harbour at Peterhead by two fishermen who were true sailors and had no thought of reward. In fact, when offered it, they courteously but firmly refused.

At 0700 hours next morning, September 11, we set off under power as there was no wind. Going very slowly the Skipper was negotiating a narrow channel used only by the locals about which the fishermen of the previous night had told him, when there was a tremendous jar. Those below, and they consisted of all the crew, having breakfast, less the Skipper, were thrown off their feet: porridge, coffee, etc., was lying in the bilges. We had struck a rock. Actually, luckily, we had lightly glanced off a rock. What the impact would be if we were really on the rocks I should hate to think. We slipped off at once, and reversing the engine got into safe water where we took the bottom boards up to see if there was damage. Finding none, we decided to carry on.

Whilst in Peterhead Harbour we had the opportunity of looking over a modern ocean-going trawler and were much impressed by the luxury of the crew's quarters which were every bit as good as a good-class hotel. The Captain brought us on the bridge and showed us the newest electrical instruments. depth finders; fish shoal finders; Radar; etc. By noon the wind had freshened so we up sails and spanked along with the wind on our port quarter. A small fishing trawler came alongside us and the skipper threw aboard about a dozen sole and with a cheery wave of his hand disappeared in a cloud of smoke. The wind continued to increase and as it came from the N.E. it brought increasingly rough seas with it. The tide was, however, still in our favour and we made exceedingly good time, slipping quickly past Aberdeen, and coming abreast of Stonehaven. Here it was decided to take in a reef but the patent gear kept jamming so we lowered the mainsail and put up the storm trysail. With Colin at the helm most of the work of reefing, changing sails fell on the Skipper as he was really the only one aboard with the requisite knowledge of the workings and storage of that particular boat. By this time the seas looked and were tremendous, coming up on our port quarter and crashing on shore. It was raining and visibility at times was very poor. The wind force continued to increase and was now bordering on gale force. At 1600 hours we were abeam Montrose and at 1800 hours we had to make up our minds about our future course. Our possibilities were: Try for Arbroath? Dangerous on account of the narrow entrance in this sea and wind; run for the Firth of Forth? The safest and best course; or to hold on and try for the entrance to the Tay and, if the sea over the bar permitted, make for Dundee and our moorings at Tayport. Knowing the capabilities of the ship the Skipper decided on the latter course and with Colin completely taking charge of the piloting, we came in line with the Bell Rock light and the Abertay lightvessel and so in between the navigation buoys in the channel. With our small spread of canvas and the engine to help Colin guided us light by light into smoother and smoother water and so it was with a feeling of relief and also one of a good day of accomplishment that at 2200 hours we tied up in the harbour at Tayport.

In retrospect we were lucky in our nineteen days of cruising in having fine weather and smooth seas where it mattered most. The storms, gales and rain came to us in land-locked waters where shelter could always be found and where the seas were comparatively smooth. A rule on board was that the cook was not permitted to wash up and so we had a strict roster which prevented any argument and made everyone happy. We had a 50-gallon tank of water on board and two 4-gallon emergency tanks. It was found easier to replenish the large tank daily rather than having to refill the whole 50 gals. at once so another roster of duty for refilling the smaller tanks was necessary. Our one cylinder of calor gas did the job of cooking our meals and heating the saloon and is still going strong. The two lads who joined at Inverness thoroughly enjoyed it, and both were full of pluck. Family cruising in this way is an economical and most delightful way of having a holiday, providing you get good weather, smooth seas, and take reasonable care to avoid undue risks. The great thing is not to frighten the children, or your wife. I think I have succeeded as we are already planning our next cruise which will be, we hope, to Ireland.

Clinical and Other Notes

IMPROVISED 'TIN' INCINERATOR

BY

Captain J. P. A. DEVITT

Royal Army Medical Corps

INTRODUCTION

THE ever-growing number of food tins which daily find their way into the unit incinerator, from cookhouses, Messes, and Regimental Institutes is rendering the task of the incinerator attendant increasingly difficult. Unless stoking is carefully regulated, the chamber soon becomes blocked, and much of the rubbish remains unburnt. Should this residue be deposited into an open pit, the danger of fly infestation becomes immediately apparent.

To overcome this difficulty a simple destructor has been improvised which permits of the rapid incineration of all empty food tins, thereby enabling the main camp incinerator to dispose of the remainder of the refuse in a satisfactory manner.

The destructor, which is operated by a simple oil and water flash fire, consists essentially of an open 44-gallon oil drum, with a burner platform of 2 in. mesh expanded metal to support the empty tins. To facilitate removal of contents after incineration, two carrying handles are fixed to the drum 6 in. from the top.

CONSTRUCTIONAL DETAILS

The top is cut out of a 44-gallon oil drum and an opening 14 in. long and 10 in. high is made in the side of the drum 1½ in. from the bottom.

Two 2 ft. lengths of piping or iron bars are passed through the drum immediately above this opening and approximately 14 in. apart.

A sheet of 2 in. mesh expanded metal cut to the shape of the drum is then lowered on to the pipes and securely wired (fig. 1).

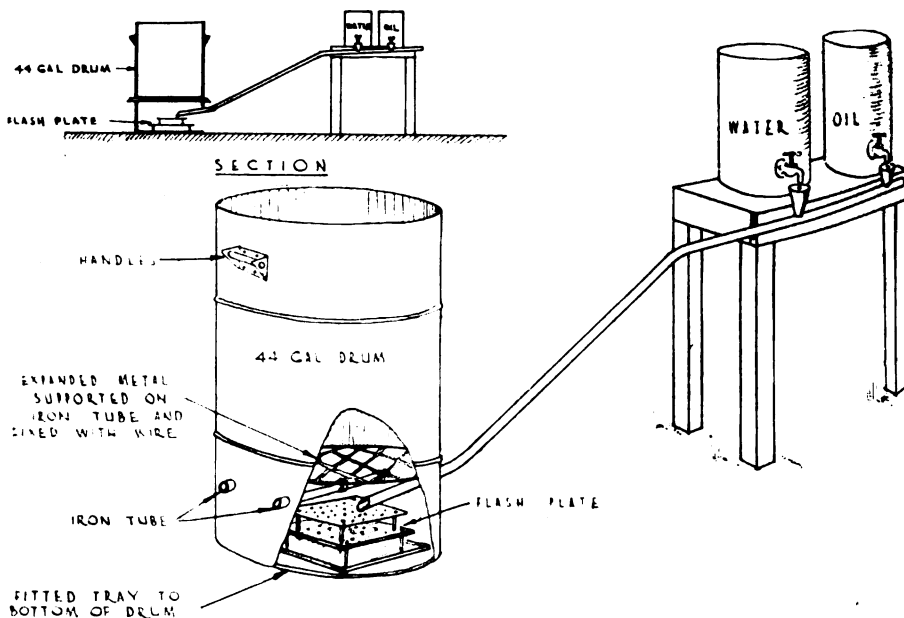


FIG. 1.

Finally 2 metal carrying handles are bolted to the drum on either side, approximately 6 in. from the top.

DETAILS OF FLASH FIRE

The heating unit for the destructor is an oil and water flash fire—a well-known Army device for utilizing waste sump oil. The oil and water containers are erected on to a small platform to which is attached a ¾ in. feed pipe. The slope of the feed pipe is adjusted so that the lower end is suspended approximately 4 in. above the centre of the flash-plate.

A convenient design for a flash plate is illustrated at fig. 2. The top and centre plates are perforated and fixed to the base by 3 in. bolts.

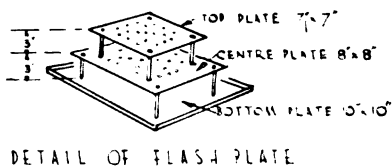


FIG. 2.

OPERATING INSTRUCTIONS

The tins are loaded into the drum and the flash plate pre-heated by burning upon it an oily rag or other readily combustible material.

When the plate is very hot and dry, and not before, a little oil is run down the pipe followed by a trace of water.

When flashing occurs, the flow of oil and water is increased until about $\frac{1}{3}$ to $\frac{1}{2}$ the quantity of water is being used.

Complete incineration should be affected in ten minutes. At the end of 25 minutes the drum should be sufficiently cool to permit final disposal of the contents.

SUMMARY

A simple improvised destructor is described which permits of the rapid incineration of empty food tins from a unit.

The destructor and heating can be easily constructed from salvaged material. Only simple tools are required and it is well within the capacity of a Regimental pioneer.

Correspondence

FUTURE MEDICAL OFFICERS FOR THE ARMY

SIR,

Having read the provoking series of articles by Colonel R. H. Robinson, T.D., on "Future Medical Officers for the Army," it seemed that it might be of interest to record the fate, over the past few years, of some of the recruiting inducements mentioned by him.

(a) *Undergraduate Military Training*.—One of the inducements to join the pre-war O.T.C. was that, in the event of a war, those who had obtained certificates "A" and "B" would obtain three and six months' antedate of commission respectively. Unfortunately this is not what happened, as on the outbreak of the 1939/45 war instead of T.A. commissions being granted as hitherto emergency commissions were given, with the result that all applications by holders of these certificates for antedate were automatically disallowed.

(b) *Antedate for Commission for whole-time appointment in a recognized civil hospital*.—A.C.I. 1814/43 reopened the granting of short-service Regular Army commissions to emergency commissioned officers, stated what the gratuities would be and that other conditions were as laid down in the Pay Warrant. To the surprise of those short-service officers who applied for and were granted post-war regular commissions, their claims for antedate were turned down on an amendment No. 164 (27/General/3230) to the Pay Warrant 1940, which was not published until July 1949 but which had retrospective

effect to 1939. Yet since January 1, 1951, this antedate, now up to a maximum of two years, has had to be reintroduced to stimulate the recruiting of short-service officers for the R.A.M.C.

(c) *Civilian Specialist Overseas*.—Last year formation headquarters were asked to circularize officially national service officers on the financial advantages of becoming a civilian specialist overseas. This made it difficult to recommend to national service officers the Army as a career at about half the pay and the inconveniences of Military Law and discipline.

(d) *Interpreters*.—A.C.I. 992/48 reopened the approval of monetary awards for qualification as interpreters in certain foreign languages to regular officers of all Arms and Services. Yet A.C.I. 190/51 has deleted regular officers of the R.A.M.C. and inserted in their place those of the W.R.A.C.

Perhaps the fear of a like fate to inducements now proffered for regular service may have engendered a state of mind in some national service officers such as held by many of the Ancients: "Timeo Danaos et dona ferentes."

I am, Sir,

Yours faithfully,

(sgd.) F. G. NEILD,

Major, R.A.M.C.

P.S.—Military Training (Dress and Morale). Although Service dress is no longer official except for full colonels and above and No. 1 dress is not yet compulsory to wear, in B.A.O.R. at any rate for official functions during the day Service dress is *de rigueur* as is No. 1 at night. It is therefore difficult for a national service officer attending either of these functions in battledress to feel at ease. Other Arms and Services manage to maintain their officers at a high standard of dress by such devices as keeping at the regimental depot a clothing store of S.D. and No. 1 dress purchased from demobilized officers. Why cannot this be done at the R.A.M.C. Depot and T.E. with its immensely higher turnover of officers.

A.M.D. NOTES

DEAR SIR,

Reference "Notes from A.M.D." by your "Special Correspondent," which appeared in August 1951 copy of the Corps Journal.

It is noted that I have not been mentioned in the "mental tour" of the U.K.

In all humility, I am reluctant to accept that I have been omitted for the same reason as our Director-General, and accordingly accept that I must be the "somebody" referred to in the terminal paragraph of the article.

May the attention of your "Special Correspondent" be directed to the current Army List page 71B—Western Command, Medical, where I am more fully identified.

B. BLEWITT,

Lt.-Col. R.A.M.C.

Due apologies and suitable amendment are given in our current Matters of Interest.—En.

Matters of Interest

JAMAICA HURRICANE

MILITARY HOSPITAL,
UP PARK CAMP,
KINGSTON,
JAMAICA, B.W.I.

MY DEAR GENERAL,

I enclose a copy of my hurricane report to H.Q., C.A. From it you will see roughly what happened and the steps taken in anticipation of the storm and afterwards.

No great material damage was sustained by the hospital though it got very well soaked, especially Ward II where our few patients had been congregated.

Military casualties and families were light—only 1 dead and 4 injured from the Jamaica Battalion at Harman Barracks which was demolished.

All ranks of the Hospital staff, Officers, Nursing Officers, Other Ranks, locally enlisted Q.A.R.A.N.C. and civilian employees worked like trojans before, during and after the hurricane. All reported for duty the following day.

Lieut. M. L. Wheatley, R.A.M.C. (on temporary duty from Bermuda) in the absence of Lieut. Loeb at Grenada, did sterling work in Port Royal. The garrison there was not too badly damaged, but the village (some 1,500 people, mostly living in shacks which were literally flattened) suffered many minor casualties and 4 deaths. He and Cpl. Simmonds and Cpl. Holmes, R.A.M.C., all helped with dressings and supervision of sanitation in the village. The villagers were housed in the Parish and Baptist churches and later in the Old Naval Hospital which hadn't even lost its roof. Supervision of sanitation was very necessary as there was a danger of lack of water owing to the failure of electricity for the pumps. Mains water was, however, soon restored and the village under control. Red Cross and civilian workers came in and the villagers were inoculated with T.A.B. by the civilian Public Health authorities who are now looking after the village though we are still attending to a few cases for daily dressings.

On August 20 the military sent a relief column of the R.W. Fusiliers to contact Morant Bay, 30 miles east of Kingston, which was very severely damaged. I sent Lieut. H. S. Moore, R.A.M.C., R.M.O. of the R.W.F. Battalion and Sjt. Camp, R.A.M.C., with emergency drugs and dressings to aid the civil medical authorities who were undoubtedly swamped with work. These two did truly magnificent work, especially in the outlying hill dis-

tricts which had been cut off and the civilian medical people could not reach. They went as far as they could in a carrier and, where this was not possible, on foot, bringing first aid and some food. Lieut. Moore sent me daily reports by wireless of casualties and the state of roads. They assisted very greatly the distressed (the majority were homeless or rather shackless), helped to give T.A.B. inoculations and both were highly praised by the civilian doctors and their patients.

Moore's feet were blistered in the end through his walking. I fetched them back on the evening of the 25th as the civilians then had the situation under control.

Yours sincerely,
(Sgd.) S. WARD,
Major, R.A.M.C.,

S.M.O., C.A., and O.C. Military Hospital, Jamaica.

HURRICANE REPORT—MILITARY HOSPITAL, JAMAICA

TIME TABLE OF EVENTS

Thursday, 16th Aug. 51.

Phase I. 1540 hrs. Medical Officer, Lieut. Wheatley, R.A.M.C., sent to Port Royal with monkey box in 3-tonner and stretchers in lieu of ambulance car (2nd ambulance car was at Moneague Camp).

10 patients who could be sent home were discharged from hospital. Remaining patients (12) all transferred to Ward I. Wards II and III and Families Wing closed up. All hurricane Phase I precautions taken. Orderly Medical Officer, Lieut. Moore, remained in hospital.

Friday, 17th Aug. 51.

Battening down of all windows and shutters continued.

0945 hrs. Phase II.

1900 hrs. Phase III sounded—all preparations in hospital completed. Matron and Nursing Officers came to and remained in hospital in theatre corridor.

2115 hrs. Storm commenced.

2130 hrs. All patients had to be transferred to theatre corridor owing to severe flooding from ceiling of Ward II.

Saturday, 18th Aug. 51.

0400 hrs. Casualties (+) brought in from Harman Barracks which was flattened. None too severe—1 fractured clavicle and 1 fractured scapula.

0630 hrs. Another admission—laceration case.

0700 hrs. Body of Pte. Johnson, Jamaica Bn., brought in from Harman Barracks with fractured neck.

0900 hrs. No water from cold taps—reserves adequate.

During the course of the day many minor cases dealt with and R.T.U.

After drying Ward II, patients were put back and Ward I was opened for admissions. Ward III was made ready to accommodate up to 50 civilian casualties if required by the civil authorities.

1830 hrs. 5 civilian patients brought in from Port Royal. 1 admitted to hospital for suture, 1 transferred to K.P.H., 1 detained for night and 2 returned to Port Royal after treatment.

2200 hrs. Dr. and Mrs. MacPhail admitted to Officers Ward from Port Royal. Roof had fallen in on them. Dr. MacPhail bruised, Mrs. MacPhail had swelling in R.I.F., Abscess.

Sunday, 19th Aug. 51.

1400 hrs. Civilian brought in by ambulance from Spanish Town, with compressed fracture thoracic vertebræ. Transferred to Kingston Public Hospital.

1515 hrs. Civilian old lady admitted from Port Royal with nasty chronic ulcer of left leg and gangrene of toes.

SOME POSTINGS

Lieut.-Colonel T. H. C. Morton from the Louise Margaret Hospital to Salisbury Plain District as A.D.M.S. and to be Colonel.

Colonel T. H. Twigg from H.Q. Aldershot District to the S/S Depot and T.E. R.A.M.C.

Lieut.-Colonel A. M. Pugh to be Professor of Pathology with the rank of Colonel.

Colonel J. M. Ryan has arrived from abroad and after temporary attachment to the Depot, has been posted as A.D.M.S., H.Q. North-West District in place of Colonel W. C. Mackinnon.

NOTES FROM A.M.D.

BY OUR SPECIAL CORRESPONDENT

ON July 25, 1951, the following General Order was published by Headquarters, Eighth United States Army, Korea:

MERITORIOUS UNIT COMMENDATION

By direction of the Secretary of the Army, under the provisions of AR 260—15, the Meritorious Unit Commendation is awarded to the following unit for exceptionally meritorious conduct in the performance of outstanding service during the period indicated. The citation reads as follows:

The 60th Indian Field Ambulance is cited for exceptionally meritorious conduct in the performance of outstanding Services in Korea in support of combat operations during the period from November 1950 to May 1951. During this period the 60th Indian Field Ambulance has rendered medical support to the American, British, Canadian and other elements of the United Nations Forces in a superior manner. The sick and wounded were speedily and efficiently cared for and treated with superior professional care, which saved many a life and aided materially the war effort. When an airborne regimental combat team was ordered to land at Munson behind enemy lines, this unit volunteered its services as medical support. Although the services of the entire unit were not needed, a surgical team was selected and rendered exceptional service. In spite of the many difficulties of transportation, weather, supply and numerous movements of this organization caused by the tactical situation, the medical mission was always expeditiously and skilfully accomplished. The spirit and co-operation, devotion to duty and the unfailing excellence of the work of all members of this unit as well as their determined policy of remain-

ing as far forward as possible and remaining forward far longer than is normally expected of a unit of this type have contributed essentially to the immediate combat effectiveness and to the general morale of the units it supported. The 60th Indian Field Ambulance displayed such outstanding devotion and superior performance of exceptionally difficult missions. The individual and collective professional standards and conscientious achievements of members of this organization reflect the highest credit on themselves, their homeland and the military service of the United Nations.

BY COMMAND OF LIEUT.-GENERAL VAN FLEET

Colonel G. Anderton, the A.D.M.S. of 1st Commonwealth Division, wrote that this award was one of the highest which could be given to any unit in the Field serving under U.S. Army command and they all felt intensely pleased and proud that a medical unit now with the Division had so been honoured—and he could say worthily so.

Consequent upon the publication of this citation, the Director-General Army Medical Services, sent this signal message to 60th Indian Field Ambulance, which is commanded by Lieut.-Colonel Rangaraj, and to the Director-General Armed Forces Medical Services, New Delhi, India:

The Director-General and all ranks Army Medical Services send warmest greetings and heartiest congratulations to the O.C. and all ranks 60 Indian Field Ambulance on the well-deserved award of the meritorious unit commendation, the news of which has filled your British comrades with the greatest pride, admiration and pleasure. Well done 60 Field Ambulance.

The following messages were received in reply:

From 60 Indian Field Ambulance. For the Director-General and all ranks Army Medical Services. Thank you very much for the congratulatory message, the contents of which I have conveyed to all ranks of the unit.

For Director-General Army Medical Service from D.G.A.F.M.S. Director-General and all ranks Army Medical Corps thank you for your greetings and congratulations to 60 Indian Field Ambulance and reciprocate their good wishes to you all.

It has come to our ears that Major D. H. R. Montgomery, who is second-in-command of 26 Field Ambulance, has been awarded the American Silver Star for gallantry in the Imjin River Battle in April of this year; and that Lieut.-Colonel A. MacLennan, who commands the Field Ambulance, has been awarded the American Bronze Star with V Emblem. We hope to be able to amplify this news in the next issue of the Journal.

It is now time to resume our world tour, and this month we find ourselves in the Far East. The D.M.S. Far East Land Forces is Brigadier C. W. Greenway, who has taken over from Brigadier R. Murphy, who was unfortunately invalided home. The D.D.A.H. is Colonel L. R. H. Keatinge, and the

Consulting Surgeon and Consulting Physician are respectively Colonel A. J. Clyne and Colonel W. D. Hughes. Lieut.-Colonel A. L. J. Webb is A.D.M.S. At H.Q. Malaya District Colonel W. A. D. Drummond is A.D.M.S. and his A.D.A.H. is Lieut.-Colonel J. E. C. Robinson. Lieut.-Colonel K. H. Clark commands the British Military Hospital, Kinrara; Lieut.-Colonel W. N. J. Clarke commands the British Military Hospital, Kamunting; and commanding the British Military Hospital, Kluang, is Lieut.-Colonel H. R. Hartnell.

In Hong Kong, Colonel J. B. Macfarlane is A.D.M.S. and also commands 35 General Hospital. The British Military Hospital, Bowen Road is commanded by Lieut.-Colonel J. Boyle, and 33 General Hospital is under the command of Colonel M. A. Rea. In the latter hospital, Lieut.-Colonel J. W. Spence is in charge of the surgical division and Lieut.-Colonel A. C. S. Hobson is in charge of the medical division. Officers in command of field units are Lieut.-Colonels A. Grieve and H. G. Skinner.

At H.Q. Singapore District the A.D.M.S. is Colonel J. H. Anderson, and at the British Military Hospital, Singapore, Colonel N. P. Breden is the commanding officer. In charge of the medical division there is Lieut.-Colonel F. K. Bush. Lieut.-Colonel J. McGhie, the Adviser in Psychiatry, is also based there. At the Pathological Laboratory in Singapore we find Lieut.-Colonel F. E. Buckland.

Lastly we visit Korea, where Colonel G. Anderton is A.D.M.S. 1st Commonwealth Division. We have already mentioned the Field Ambulance, and so to Kure, in Japan, where 29 General Hospital, working in combination with the B.C.O.F. Hospital, is commanded by Colonel J. E. Snow. Lieut.-Colonel J. Mackay-Dick is O. i/c medical division, and until recently Lieut.-Colonel J. C. Watts was O. i/c surgical division.

If we have any regular readers they may recall our "E. & O.E." note in the August issue after our tour of the home commands. We had an instinctive feeling that we should be taken to task for failing to visit one of the more important installations. Our fears were justified by subsequent events. We find ourselves—an uncommon event—quite without excuses for having omitted to call at Western Command Laboratory to see Lieut.-Colonel B. Blewitt, who is A.D.P. Western Command, and to whom we offer our apologies. If only we had carried a copy of the Army List in our knapsack . . .

Perusing the *London Gazette* (as is our wont) we see that Major D. G. Levis was promoted to Lieut.-Colonel with effect from August 20, 1951; Colonel J. C. Coutts was promoted to Brigadier on August 22, 1951; and from the same date, Lieut.-Colonel D. A. O. Wilson to be Colonel and Major J. E. C. Robinson to be Lieut.-Colonel. Captain B. Bevan was promoted to Major, August 7, 1951.

In the list of retirements we see that Colonel A. M. Simson, having reached the age for retirement, is retained on the Active List supernumerary to

Establishment, and that Lieut.-Colonel J. W. F. Munden, having exceeded the age limit for retirement, is placed on retired pay, September 9, 1951.

Captain R. J. C. Hart has been granted a Regular Commission, dating from July 31, 1951, retaining his present seniority.

We are very glad to be able to give our readers some news of two R.A.M.C. officers who we previously recorded as missing in Korea. On September 6, 1951, a letter written by Captain A. M. Ferrie on March 7, 1951, was received by his mother. The letter said that he was alive and well and not wounded. Similarly the father of Captain R. P. Hickey received a letter on September 21 in which Captain Hickey wrote from a prisoner-of-war camp in Peking that he was being well treated and cared for. The letter was dated August 4, 1951. We are sure that all readers will rejoice with us that these two officers, recalled from the Reserve last year, are safe and well. We earnestly hope that the day of their return to their families will not be long deferred.

THE ROYAL ARMY MEDICAL CORPS SPORTS UNION

ANNUAL REPORT BY THE CHAIRMAN FOR THE SEASON 1950/51

THIS is the first Annual Report which has not been prepared by the founder of the Sports Union, Brigadier R. Murphy, *C.B.E.*, with whom we all sympathize in his recent illness.

The main objects of this Union are the furtherance of Sport in the Corps and the promotion in particular of the "Harwood," "Irvine," "Bateman" and "Bostock" Cup Competitions.

These competitions attracted very large entries and many keen and exciting games were played. In the "Harwood" Cup Football Competition every company in the United Kingdom entered a team except one. This is very encouraging and I feel that our object is being achieved. Those who served before the war will remember that only a small number of companies were able to compete in these competitions, mainly because of the heavy cost of travelling. Today it is very encouraging to see No. 13 Company, Cowglen, No. 15 Company, Belfast, and other "distant" companies actually taking an active part in these games.

It is also very satisfactory to record that honours were fairly well distributed throughout the units taking part.

Two new rules were introduced in the Association Football Competitions (Harwood and Irvine Cups):

- (a) No registered professional allowed to play.
- (b) Only two Depot 1st XI players permitted to play in each Depot company team.

This made the competitions more open, although the holders, H.Q. Company Depot R.A.M.C., retained the "Harwood" Cup by narrowly defeating "D" Company by 5 goals to 4.

In the "Irvine" Cup, open to all Aldershot District Companies, The Depot, Royal Army Dental Corps, won the cup for the first time by beating the holders, H.Q. Company Depot R.A.M.C., by 4 goals to 1.

Colonel Irvine watched the game and presented his cup himself to the winning team.

Particular thanks are due to No. 18 Company R.A.M.C. not only for running the "Bateman" Boxing Competition, but for the splendid show they put on. The arrangements reflect great credit on all concerned.

"D" Company of the Depot once again brought off the team championship with 18 Company a very close second. Colonel Bateman watched the finals and presented the cup and the D.G.A.M.S. gave away the individual medals.

The "Bostock" Cricket Competition resulted in a win for No. 4 Company R.A.M.C., Oxford, by beating No. 19 Company, Chester, by 163 runs to 70 runs. Major General Harris presented the cup to the winners.

The Corps Sports had a record number of entries. This was the only record that was broken, but quite a high standard was attained in both field and track events.

At the Swimming Gala, which was organized again by No. 1 Company R.A.M.C., The Depot, R.A.D.C., won the team championship for the first time. Two new records were made—Pte. Neville, R.A.M.C., won the 100 yards Breast Stroke in 73.2 seconds, and Pte. Wilkinson, R.A.D.C., won the 100 yards Back Stroke in 74.2 seconds. Pte. Neville has won the Southern Command Championships (100 yards breast stroke) and now qualifies for the final of the Army Championship in this event.

As a Corps we fielded few representative teams. At Soccer we played one match against R.E.M.E. (Army Cup Winners). This game attracted a large crowd at Aldershot Military Stadium and ended in a draw, 2 goals each.

At Rugby the Corps played two matches. One against the R.E.M.E. which they lost, and the other they won against the R.A.O.C. Captain P. R. G. Graham and Lieutenant T. H. Whitaker played for the Army and Hampshire during the Season.

We played cricket twice against our old rivals the R.A.O.C. in their Corps Week as well as in our own. On each occasion they beat us very easily. Very little support was given by the companies with the result that we fielded very weak representative teams. Further Corps Matches were played against the R.A.P.C. (to whom we lost) and the R.A.E.C. (Drawn).

It is very disappointing that our "corps" teams are not really representative teams.

The Sports Officer at the Depot sends round a letter at the beginning of each season asking for the names of likely Corps players. Few companies even trouble to reply to these letters. It is obvious from the fact that the

Bostock Cup Final was between 4 and 19 Companies that there is a good deal of cricket talent in the companies. The Depot team has done well and has reached the final of the Aldershot District Knock-Out Competition.

There must be few Service Teams who play against first division teams, but, once again the Fulham Football Club very kindly travelled to Crookham to play the Depot Team. This was a very good game which a fairly strong Fulham team won by 3 goals to 2. The proceeds of this match all went to the Union Funds. We are very grateful to the Fulham F.C. and hope the fixture will become an annual one.

Although companies have received considerable help towards travelling expenses from the Sports Union the balance sheet shows that the funds are in a good financial position.

The following "companies" have been incorporated into the Union during the year:

The David Bruce Laboratories.

The Depot, Royal Army Dental Corps.

The Depot, Q.A.R.A.N.C. (R.A.M.C. personnel only).

APPENDIX "A"

Corps Competitions—List of Winners 1950/51

BOXING

"Bateman" Boxing Cup—Team Championship.—Winners: "D" Company, Depot R.A.M.C. Runners Up: No. 18 Company, R.A.M.C.

Individuals.—Fly: Pte. Devine, 18 Company. Bantam: Pte. Smallbone, "D" Company. Feather: Pte. Cooke, "D" Company. Light: Cpl. Creaghan, "H.Q." Company. Welter: Pte. Cairns, 15 Company. Middle: Pte. Rawcliffe, "C" Company. Lt. Heavy: Pte. Delaney, 19 Company. Heavy: Pte. Matthews, 20 Company.

Association Football—"Harwood" Cup.—Winners: "H.Q." Company, Depot R.A.M.C. Runners Up: "D" Company, Depot R.A.M.C.

"Irvine" Cup.—Winners: Depot R.A.D.C. Runners Up: "H.Q." Company, Depot R.A.M.C.

CRICKET

"Bostock" Cup.—Winners: No. 4 Company, R.A.M.C. Runners Up: No. 19 Company, R.A.M.C.

Corps Athletic Meeting.—Winners: "D" Company, Depot R.A.M.C. Runners Up: "C" Company, Depot R.A.M.C.

Swimming Gala.—Winners: Depot R.A.D.C. Runners Up: "H.Q." Company, Depot R.A.M.C.

Corps Colours.—The following were awarded Corps Colours in recognition of outstanding services to Sport during the past year. The D.G.A.M.S. kindly presented them at the conclusion of the Corps Sports.

Association Football.—Pte. J. Anderson. Pte. D. Pace. L/Cpl. G. Toseland.

Rugby Football.—Capt. P. R. G. Graham. Capt. J. A. MacDougall. Lieut. T. H. Whitaker. Cpl. J. Halls.

Cricket.—Capt. G. E. Howells. Capt. T. F. Haynes. W.O. II B. Steeles.

Swimming.—L/Cpl. A. Bowie.

Boxing.—Cpl. B. Creaghan.

ARMY BADGES

Association Football.—Pte. D. Pace. Pte. J. Anderson.

The Murphy Cup.—This cup, presented by the Depot R.A.M.C., for annual award to the member of the Corps who had done most to further the interest to sport in the R.A.M.C. was awarded to: Cpl. F. Jackson.

SIX MONTHS

Scene

Very Senior Officer Visitor to a large hospital, while enquiring into the conditions of service of N.S.O.R.s interrogates one fresh-faced N.S.O.R.

(NOTE: Out of several hundred questioned only three really disliked N.S.)

V.S.O.V.

And how much service have you done already?

N.S.O.R.

Six months, sir.

V.S.O.V.

What do you think has been the worst period of that service? Was it the actual arrival at Crookham Station, or the first fortnight at the Depot or the whole time at the Depot or when you were posted out to and first joined a unit? Which was the worst period?

N.S.O.R.

Six months, Sir.

ROYAL ARMY MEDICAL COLLEGE EVENING LECTURES

1951-1952

THE following amendments should be made to the syllabus published in the October issue of the Journal, page 308.

Thursday, December 6. The lecture by Brigadier J. S. K. Boyd is postponed to a later date.

Thursday, May 15. Amend to read Tuesday, May 13.

Reviews

DOCTORS BY THEMSELVES: An Anthology compiled by Edward F. Griffith.
London: Cassell. 1951. Pp. xxii + 614, with 64 illustrations on 16 plates.
Price 21s.

An anthology is essentially a personal book: it must be bad if the gobbets are mangled, or selected from a sense of duty or convention: it is good only in so far as the compiler's and the reader's tastes agree, with a little latitude for the pleasure to be derived from vehement disagreement. The 869 passages are virtually all from the writings of medical men: they include the stimulating and the comforting, the gratifying and the evocative: none is hackneyed, though some are pleasantly familiar. The source of each quotation is given in full, with a biographical note on every author. The proportion of extracts from the works of military medical authors is notably high. Cassells have made the book beautifully: the print is clear, the binding strong, and the pages open delightfully flat. This is an excellent anthology, an attractive bedside book, and a universal companion.

J. B. N.

GYNÆCOLOGICAL ENDOCRINOLOGY FOR THE PRACTITIONER. By P. M. F. Bishop.
D.M.Oxon. Second Edition. E. & S. Livingstone Ltd. Pp. ix + 121
with 1 illustration and 14 diagrams. Price 12s.

This small book sets out in concise form the latest views on hormonal mechanism and treatment in gynæcology. It deals excellently with the practical application of present-day knowledge and puts Endocrines in their proper perspective (which is small as yet) against the general background of Gynæcology.

No officer engaged in "Families" should fail to study it and any doctor may read it with advantage.

I. H. C. M.

Report of the 11th and 12th Sessions of the INTERNATIONAL COMMITTEE OF MILITARY MEDICINE AND PHARMACY.

This report covers the sessions in 1948 (at Stockholm) and 1949 (at Havana). The report on the 1948 session includes papers on the status of medical personnel in time of war and their protection under the Geneva Convention, the reports on the use of Dextran as a blood and plasma substitute in Sweden and Denmark and addresses on various aspects of the prevention of tuberculosis in Scandinavian Defence Forces.

The report of the 12th Session of the Committee, which took place in Havana, Cuba, in 1949, covers a description of the Military Medical Service in the Cuban Army, an account of Pterygium in the Cuban Army (about 9 per cent of military personnel report sick with this disease and the annual number of operations performed is second only to those performed for appendicitis); a description of the care of disabled ex-Service men in Finland; and papers on the Status of the Military Medical Service by Colonel Glorieux and the International Teaching of the Principles of Medical Ethics and Professional Brotherhood in the different Armies by General Voncken, both of Belgium.

Some of the papers are written in English and some in French and a summary in the alternate language is given at the end of each paper.

S. M.

INFLUENZA VIRUS RESEARCH AND ITS BIOLOGICAL IMPLICATIONS. By Professor Wilson Smith, M.D., F.R.S., Professor of Bacteriology, University College Hospital Medical School. Extracted from the Bengué Memorial Award Lecture, 1951, delivered at The Royal Institute of Public Health and Hygiene.

The pandemic of influenza which swept over the globe towards the close of the first world war re-emphasized the supreme importance of the problem of influenza ætiology. . . .

The first aspect to consider concerns those researches which, by the isolation of new strains and by comparisons of their structure and behaviour, have gradually led to the recognition that the ætiological agent of influenza is not a single virus but rather a large group of viruses of great complexity and diversity. . . .

. . . During an epidemic, recovery of fresh virus strains can now be expected with some degree of confidence, but there remain small outbreaks of disease clinically indistinguishable from influenza from which no virus can be isolated. These are usually dismissed as epidemics of febrile catarrh, unrelated to true influenza, but the diversity of the numerous influenza virus strains which we now possess should make us hesitate to accept such a conclusion on purely negative evidence. . . .

. . . During the present year, laboratory workers have been engaged in an investigation of four new virus strains isolated during the epidemic of January and February. These are indistinguishable, by the standard methods of antigenic analysis, but show interesting and important differences of infectivity behaviour. . . .

The demonstration of the virus ætiology of epidemic influenza raised extravagant hopes that conquest of the disease was in sight and it was natural that in the early phases of the work the immunological responses of both man and experimental animals occupied a good deal of attention. The short duration of immunity in man had always been a puzzle and it was soon found that,

in this respect as in clinical symptomatology, the ferret behaved like the human being. The important point, however, was established that qualitatively the immunity responses in influenza are the same as those in the virus and bacterial infections which confer life-long immunity, such as smallpox and typhoid fever. Recovery from infection is followed by resistance to reinfection with the same agent which, though of relatively short duration, is extremely effective whilst it lasts. . . .

. . . . Whilst any views on inhibitor function must at the moment necessarily be merely speculative, here again it is essential to bear in mind that the infective dose of virus in natural infection may be extremely small compared with the doses needed in experimental work. . . . We all recognize that individuals differ in the readiness with which they pick up infections and that in each individual, resistance to infection is far from being a static condition. For lack of precise knowledge of the factors involved we have to employ generalized terms such as constitutional susceptibility, lowered resistance from chill, etc.

. . . The early hope of conquest of a great human scourge has not yet been realized but whilst prophecy is a dangerous pastime we predict that influenza will eventually be controllable and by measures derived from researches which at present seem to have no practical application. Even if the prophecy should never be fulfilled there are more important matters afoot in virus research than the conquest of one particular human ailment. Very gradually light is being shed upon the nature of the viruses, the mechanism of their invasion of host cells and their replication therein, the reasons for their pathological effects and even upon the processes by which life arose and evolved to the gallimaufry of living organisms of which we ourselves constitute a tiny fragment. In conclusion, therefore, we would affirm without hesitation that all the money, time and effort expended upon influenza virus research has been both well spent and amply repaid.

T. O. T.

THE PHARMACOLOGY AND THERAPEUTICS OF THE MATERIA MEDICA. By Professor Walter J. Dilling. M.B., Ch.B., M.P.S. (Hon.). Nineteenth Edition. 1951. Pp. 598. London: Cassell & Co. Price 21s.

It is again good to review the latest edition of this book, which has been brought up to date not only by the inclusion of the later antibiotics but by the meticulous use of the metric system side by side with the Imperial—an adjective now alas almost without meaning, except in a political sense. In this journal the interest is perhaps biased towards medicine in the tropics and the absence of the action of chloroquine on amœbic hepatitis was noticed with regret. So too was the omission of penicillin, or aureomycin in the treatment of acute amœbic dysentery. Chloromycetin has by now established a firm place for itself in the treatment of acute respiratory infections in children and perhaps this should have been mentioned. B.C.G. and its use was unfortunately omitted completely.

The book is well produced with a good index although dramamine, Terramycin and leprosy were included in the text but not in the index. The price is good for the number of pages of readable and well set out print that is offered. The pruning of the old-fashioned galenicals is to be admired, but it is very questionable whether except for examination purposes therapeutics are not better left to the physicians who write textbooks of physic, especially as soap and water is still recommended as an enema—despite the extremely severe proctitis which may occur in these days of indifferent soap manufacture.

These criticisms are, however, the pin-pricks of a reviewer to show that he has read this book, which reappears in a new and more brilliant form to adorn the School of Medicine in which Professor Dilling works.

P. S.

Extracts from the "London Gazette"

1st Sept., 1951

ARMY

Major-General F. Harris, *C.B., C.B.E., M.C., K.H.S.*, late *R.A.M.C.*, having reached the age of retirement, is retained on the Active List.

Major-General J. J. Magner, *C.B., M.C., K.H.P.*, late *R.A.M.C.*, has retired on retired pay.

Brigadier (Temporary Major-General) F. R. H. Mollan, *C.B., O.B.E., M.C., K.H.S.*, late *R.A.M.C.*, to be Major-General.

Colonel E. P. N. Creagh, late *R.A.M.C.*, to be Brigadier.

Colonel E. J. S. Bonnett, late *R.A.M.C.*, having reached the age for retirement, has been retained on the Active List supernumerary to establishment.

Lieutenant-Colonels W. J. Officer, *O.B.E.*, and V. C. Verbi, *O.B.E.*, from *R.A.M.C.*, to be Colonels.

ROYAL ARMY MEDICAL CORPS

Majors G. B. Heugh and R. A. Smart to be Lieutenant-Colonels.

REGULAR ARMY RESERVE OF OFFICERS

Colonel (Honorary Brigadier) H. B. F. Dixon, *M.C.*, late *R.A.M.C.*, having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

Colonel R. H. Alexander, *M.C.*, late *R.A.M.C.*, having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

Royal Army Medical Corps

Major (Honorary Colonel) W. E. Underwood, *O.B.E.*, has ceased to belong to the *R.A.R.O.*

Major (Honorary Lieutenant-Colonel) J. P. Stewart has ceased to belong to the Reserve of Officers.

Majors E. A. Heaslett and M. H. Hughes have ceased to belong to the Reserve of Officers.

War Substantive Major A. Young, from Emergency Commission, to be Major, and has been granted the honorary rank of Lieutenant-Colonel.

Captain (Honorary Major) J. D. O'Neill has ceased to belong to the *R.A.R.O.*

Supplementary Reserve of Officers: Royal Army Medical Corps

Lieutenant A. P. Prior to be Captain, and has been granted the acting rank of Major.

TERRITORIAL ARMY

Royal Army Medical Corps

Major J. V. Todd to be acting Lieutenant-Colonel.

Captain (acting Major) J. P. Mitchell to be acting Lieutenant-Colonel.

15th Sept., 1951

Brigadier J. C. Collins, *C.B.E.*, late *R.A.M.C.*, has been appointed a Deputy Director, Medical Services, and has been granted the temporary rank of Major-General.

A *Supplement* to the *London Gazette* has announced the following awards:

Four Clasps to the Territorial Efficiency Decoration.—Major H. Shield, *M.C.*, *T.D.*, *R.A.M.C.*

Three Clasps to the Territorial Efficiency Decoration.—Lieutenant-Colonel R. J. W. A. Cushing, *T.D.*, *R.A.M.C.*, retired.

First Clasp to the Territorial Efficiency Decoration.—Major (Honorary Lieutenant-Colonel) J. L. Orr, *T.D.*, and Majors C. H. Johnson, *T.D.*, W. F. le C. Veale, *T.D.*, and A. Young, *T.D.*, *R.A.M.C.*

Territorial Efficiency Decoration and First Clasp.—Major (Acting Colonel) A. G. Fleming, *O.B.E.*, and Majors F. J. Fowler and J. E. Morrish, *R.A.M.C.*

Territorial Efficiency Decoration.—Major (Honorary Lieutenant-Colonel) W. R. P. Templeton, Captains (Honorary Majors) G. A. Hodgson, *M.B.E.*, and A. C. McLaren, and Captain O. H. Belam, *R.A.M.C.*

17.8.51 *R.A.M.C.*

Capt. Alexander Falconer Young, *M.B.* (291379), from Short Serv. Commn. to be Capt., 30th June, 1951, retaining his present seniority.

(Substituted for the notfn. in *Gazette (Supplement)* dated 24th July, 1951).

Short Serv. Commn.

Major Thornton Innes Palmer (128978) from *T.A.* to be Capt., 16th July, 1951, with seniority 27th November, 1946.

21.8.51 *R.A.M.C.*

Maj. (War Subs. Lt.-Col.) D. G. Levis, *O.B.E.*, *M.B.* (70125), to be Lt.-Col., 20th Aug., 1951.

Short Serv. Commn.

Capt. W. J. Christie, *M.B.* (123117), retires on account of disability, 29th July, 1951, and is granted the hon. rank of Maj. (Substituted for the notfn. in *Gazette (Supplement)* dated 31st July, 1951).

24.8.51 Brig. O. O. Link, *M.B.* (22296), late *R.A.M.C.*, having reached the age for retirement, retires on retired pay, 22nd Aug., 1951.

Col. J. C. Coutts, *M.B.* (10438), late *R.A.M.C.*, to be Brig., 22nd Aug., 1951.

Col. A. M. Simson, *M.D.* (15747), late *R.A.M.C.*, having reached the age for retirement, is retained on the Active List, superny. to Estab., 20th Aug., 1951.

Lt.-Col. D. A. O. Wilson, *M.B.* (32287) from *R.A.M.C.* to be Col., 22nd Aug. 1951.

R.A.M.C.

Maj. J. E. C. Robinson (62456), to be Lt.-Col., 22nd Aug., 1951.

28.8.51 *R.A.M.C.*

Capt. B. Bevan, *B.M.* (287890), to be Maj., 7th Aug., 1951.

Capt. Richard Philip Bradshaw (371807), from Short Serv. Commn., to be Capt., 26th July, 1951, retaining present seniority.

Short Serv. Commn.

Capt. J. Ledingham, M.B. (73588), retires, having received a gratuity, 11th October, 1946.

Lt. R. Kelly-Wisheham, B.M. (412263), to be Capt., 20th Aug., 1951.

Lt. George Kenneth Stewart Roberts, M.B. (413228), from Nat. Serv. List, to be Lt., 1st Aug., 1951, retaining present seniority.

31.8.51 *COMMANDS AND STAFF*

Brig. I. C. Collins, C.B.E. (1524), late R.A.M.C., is appointed a Deputy Director. Medical Services and is granted the temp. rank of Maj.-Gen., 26th June, 1951.

R.A.M.C.

Short Serv. Commn.

Capt. (Qr.-Mr.) John Walter Creamer (154215), from Emerg. Commn. to be Capt. (Qr.-Mr.), 1st Nov., 1949, with seniority, 27th Jan., 1944 (Substituted for the notfn. in *Gazette (Supplement)*, dated 10th Jan., 1950.)

Admin. & Tech.

Short Serv. Commn.

Lt. (Qr.-Mr.) (War Subs. Capt. (Qr.-Mr.)) George Masters (297568), from Emerg. Commn., to be Lt., 8th Aug., 1951, with seniority, 29th Apr., 1948, relinquishing the appt. of Qr.-Mr.).

4.9.51 *R.A.M.C.*

Short Serv. Commns.

War Subs. Capt. Joseph Whittington Weston (119644), from Emerg. Commn., to be Capt., 7th Aug., 1951, with seniority, 22nd June, 1946.

Lt. M. H. Friuthof, M.B. (411715), to be Capt., 25th June, 1951.

Lt. (Qr.-Mr.) D. T. Langman-Dominy (359362), to be Capt. (Qr.-Mr.), 2nd Sept., 1951.

Austin Hannigan (417967), to be Lt., 30th July, 1951.

7.9.51 *R.A.M.C.*

Capt. (War Subs. Maj.) P. H. Shorthouse (86846), to be Maj., 25th Aug., 1947 (Substituted for the notfn. in *Gazette (Supplement)* dated 5th Sept., 1947.)

Capt. Peter Howard Shorthouse (86846), from Short Serv. Commn., is appointed to a permanent Commn., 25th Aug., 1944, retaining his present seniority. (Substituted for the notfn. in *Gazette (Supplement)* dated 20th Apr., 1945.)

Short Serv. Commns.

War Subs. Capt. (Qr.-Mr.) Charles Fox Allen (322560), from Emerg. Commn., to be Lt. (Qr.-Mr.), 1st Aug., 1951, with seniority, 25th Nov., 1947.

Lt. (Qr.-Mr.) William Leslie Kennett (231121), from R.A.R.O., to be Lt. (Qr.-Mr.), 8th Aug., 1951, with seniority, 29th October, 1949.

The personal number of Maj. G. J. O'Connor, M.B. (106124), is as now shown and not as notified in *Gazette (Supplement)* dated 10th July, 1951.

Lt. (War Subs. Maj.) Peter Howard Shorthouse (86846), from R.A.M.C. (T.A.), is appointed to a Short Serv. Commn., in the rank of Lt., 25th Aug., 1939, and to be Capt., 25th Aug., 1940. (Substituted for the notfn. in *Gazette (Supplement)* dated 10th Nov., 1944.)

11.9.51 *R.A.M.C.*

Lt.-Col. (Qr.-Mr.) J. W. F. Munden (71507), having exceeded the age limit for retirement, is placed on retired pay, 9th Sept., 1951.

Capt. Robert John Collins Hart (290131), from Short Serv. Commn., to be Capt., 31st July, 1951, retaining his present seniority.

Short Serv. Commns.

Capt. H. McKendrick (181479), to be Maj., 15th Aug., 1951, retaining her present seniority.

Maj. Henrietta McKendrick (181479), from Women's Forces employed with the R.A.M.C. (Short Serv. Commn. Type "B"), to be Capt., 15th Aug., 1951.

Lt. (Qr.-Mr.) R. P. Bywater (363828), to be Capt. (Qr.-Mr.), 29th Aug., 1951

R.A.D.C.

Maj. (Qr.-Mr.) T. G. Tate (93761), having attained the age limit for retirement, is placed on retired pay, 11th Sept., 1951.

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library:

Practitioner, Military Surgeon, Medical Press, Bulletin of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bulletin of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Royal Institute of Public Health and Hygiene, St. Barts Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Proc. of Royal Society of Medicine, Journal of the R.A.S.C., Tropical Disease Bulletin, Edinburgh Medical Journal, Journal of R.A.F.C., Clinical Proceedings, Indian Medical Gazette, Journal of the Royal Egyptian Medical Association, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology & Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette, xii Congreso Internacional de Medicina y Farmacia Militares, The Leech, Annales Belges de Medicine Militaire, Royal Melbourne Hospital Clinical Reports, Revue de Medecine, Courrier, North Wing, Boletin de la Oficina Sanitaria Panamericana, Giornale di Medicina Militaire, Anales de Medicina y Cirugia, L'Algerie Medecale, The British Journal of Medical Hypnotism, Revista de la Asociacion Medica Argentina, Revista Militar, Anales de Medicina y Cirugia, De Militaire Spectator, Journal of the Oslo City Hospitals, Vierteljahrsschrift fur Schweizerische Sanitatsoffiziere, Tuberculosis Institute "Sismanoglion" (Athens), The Islamic Review, The London Hospital Gazette, St. George's Hospital Gazette, Canadian Army Journal, The Ulster Medical Journal, Health Bulletin, Bulletin International des Services de Sante, Birmingham Medical Review, Distribution, Conquest, Medicine Today and Tomorrow, Bulletin Algerien de Carcinologie, The Lancashire Lad, Boletim do Centro de Estudos Hospital dos Servidores do Estado, Revista de Medicina Militar, Revista Medica da Aeronautica, King's College Hospital Gazette, South African Journal of Clinical Science.

Notices

MALAYAN CAMPAIGN OFFICERS' REUNION

THE Malayan Campaign Officers' Reunion will be held on Friday, December 7, 1951, at The Hyde Park Hotel, Knightsbridge, S.W.1.

Admission Tickets (price 17s. 6d. inclusive of Buffet Supper but excluding wines) may be had on application with remittance from:

M. Brown, Esq., 18, Troy Court, High Street, Kensington.

B. K. Castor, Esq., Kennington Oval, S.E.11.

J. I. MacDonald, Esq., 14, Bedford Gardens, Luton, Beds.

Lieut.-Col. F. H. Frankcom, W.O. (A.E.I), Stanmore, Middlesex.

B. Brocklehurst, Esq., 39, Heaton Grove, Bradford.

Leaflets have been sent to all who attended last year's reunion, and more are available for passing on to others who are interested.

Buffet Supper 7-11 p.m. Dress—Lounge suits.

TYPING MEDICAL DOCUMENTS

THE Editor can put Authors, Reviewers, Aspirants for higher degrees and writers of Reports who desire to have their manuscripts typed, in touch with a competent, late S.R.N. typist who works at a reasonable charge.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s., payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

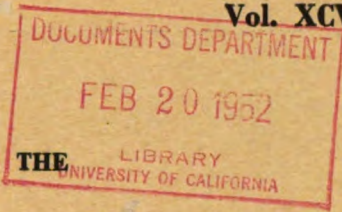
Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

ADVERTISEMENTS

Communications regarding advertisements should be addressed—
ADVERTISEMENT MANAGER, JOURNAL OF THE R.A.M.C., 14, GREAT
SMITH STREET, LONDON, S.W.1. TELEPHONE: ABBEY 1323.

Journal

OF



Royal Army Medical Corps

ISSUED



MONTHLY

EDITOR

LIEUT.-GENERAL SIR TREFFRY THOMPSON,
K.C.S.I., C.B., C.B.E., M.A., D.M.

MANAGER

MAJOR H. W. PECK, R.A.M.C.

CONTENTS

	PAGE		PAGE
ORIGINAL COMMUNICATIONS		Some Clinical Observations on the Prophylactic and Therapeutic Use of Proguanil in Mackinnon Road. By Lieut.-Col. R. M. JOHNSTONE, M.C., M.A., M.B., Ch.B., F.R.C.P.E., R.A.M.C.	461
ma Substitutes with Special eference to Plasmosan. By G. P. R. DEN, M.B.Lond., F.R.C.S., and R. R. THROWER, M.D.Lond., R.C.P.	421	AT RANDOM	
ish Planning for Health and elfare. By ELI GINZBERG	428	Blood Transfusion	468
urvey of the Problem of Enuresis om the Unit Aspect. By Captain . JONES, L.R.C.P., M.R.C.S.Lond., A.M.C. (N.S.L.)	440	TRAVEL AND HISTORY	
sthesia in War. By R. W. COPE, A., F.F.A.R.C.S., Late Major A.M.C.	445	The Directors of Medical Services in India. By Major J. B. NEAL, T.D., R.A.M.C.	471
ounting in Medical Equipment epots. By Major J. J. WIESE, A.M.C.	450	CORRESPONDENCE	492
Account of a Small Outbreak of estinal Schistosomiasis in Eritrea. y Major H. FOSTER, R.A.M.C., ptain J. G. LEITCH, R.A.M.C., d Captain I. REDSTONE, R.A.M.C.	455	MATTERS OF INTEREST	495
		OBITUARY	506
		REVIEWS	509
		EXTRACTS FROM "LONDON GAZETTE"	510
		NOTICES	513



S T A P L E S P R E S S

STAPLES PRESS LIMITED STAPLES PRESS INCORPORATED
Mandeville Place, London 70 East 45th Street, New York

Price Three Shillings and Sixpence net

In

DERMATOLOGICAL

Practice

ECZEMAS · VARICOSE ULCERS
SEBORRHOEIC DERMATITIS
PSORIASIS · PRURITUS
OCCUPATIONAL DERMATITIS

E · S · T · P

(MARTINDALE)
Brand

ETHER SOLUBLE TAR PASTE

The original colourless Coal Tar Cream
with *all* the therapeutic advantages of
crude Coal Tar

Literature and Samples on request

SAVORY & MOORE LTD.

WELBECK STREET · LONDON W1

Telephone: WELbeck 5555 (20 lines)

Telegrams: "Instruments, Wesdo, London"

Authors are alone responsible for the statements
made and the opinions expressed in their papers.

Journal of the Royal Army Medical Corps

Original Communications

PLASMA SUBSTITUTES WITH SPECIAL REFERENCE TO PLASMOSAN

BY

G. P. ARDEN, M.B.Lond., F.R.C.S.
Formerly Squadron Leader, Royal Air Force

AND

W. R. THROWER, M.D.Lond., M.R.C.P.
Formerly Major, Royal Army Medical Corps

THE aim of the treatment of shock is to restore as quickly as possible the venous return, the cardiac output and consequently the blood pressure. For patients who have lost blood its early replacement by a transfusion with whole blood is the treatment of choice. There are occasions when this cannot be done easily and recourse must be made to plasma or a plasma substitute, the prompt use of which may be life-saving.

REQUIREMENTS

A plasma substitute should satisfy certain basic requirements which have been summarized by Bull *et al.* (1949) as follows:

Positive Qualities:

- (1) Its colloid solutes should be retained in the circulation until their place can be taken by the natural proteins.
- (2) The solution used for infusion should have an osmotic pressure and viscosity similar to those of plasma.
- (3) The composition from batch to batch should be constant, within narrow and definable limits.
- (4) The material should be stable during storage and preferably not require special conditions of temperature.

Negative Qualities:

- (5) It must not be toxic, either locally or generally.
- (6) It must not induce fever.
- (7) It must not induce sensitization.
- (8) It must not be stored for long periods in the tissues.
- (9) It must not act as a diuretic.

POSSIBLE PLASMA SUBSTITUTES

The 1914-18 war gave the first impetus to transfusion practice on a large scale, whole blood and various alternative solutions being used for treating casualties. Of the blood substitutes or, more correctly, plasma substitutes the gum saline solution (6 per cent arabic in physiological saline) developed by Bayliss (1919) proved to be the best and for a period enjoyed considerable popularity. Unfortunately, inconsistencies in gums, the natural raw material, and side effects due to long retention in the body, particularly in the liver, hindered general clinical use of this fluid. Various alternatives have since been examined, particularly solutions of gelatine which have been recently used in the United States, but these have not proved to be entirely satisfactory. Attempts have also been made to improve the oxygen-carrying power of possible plasma substitutes principally by adding various hæmoglobin preparations to saline solutions, but these proved to be unreliable and even dangerous because of renal complications due to free hæmoglobin in the blood stream (Holmes and Thrower, 1924). In an endeavour to compensate for or prevent the catabolic destruction of protein tissue following major surgical operations, Billing *et al.* (1951) have studied the effect of protein hydrolysates given intravenously. They found that these infusions could safely be given but had little or no beneficial effect.

During the past eight years interest has been aroused by the introduction of dextran and various reports on it have appeared, first in Scandinavian, and more recently in British literature (Bohmansson *et al.*, 1946; Thorsén 1949, etc.). It is a purified natural product prepared by the fermentation of sugar and presented for clinical use as a 6 per cent solution in physiological saline solution. Being a mixture of polysaccharides of high molecular weights these retard the renal excretion of the saline solution in which they are dissolved. It has been given by one of us to 10 patients and its effect compared under similar conditions with another plasma substitute, Plasmosan, now to be described. The general effect of dextran in controlling the blood pressure is similar to that of Plasmosan, but in five cases blood was required in addition, whereas two major orthopaedic operations were carried out with a satisfactory blood pressure throughout the operation with 1,000 ml. Plasmosan alone, although the blood loss in these 2 cases was significant (cup arthroplasty and femoral shortening). No reactions following the use of dextran have been seen but these are known to have occurred after using certain preparations of it. The explanation for them is not clear but Voorhees *et al.* (1951) have

shown that albino rats give a demonstrable reaction of redness, swelling of loose tissue, pruritus and stupor when injected with doses of dextran comparable to those suggested for human use. Complete clinical evaluation of dextran will not be possible until greater uniformity in molecular size has been obtained and more is known about its metabolism.

PLASMOSAN

Hecht and Weese (1943), after examining several colloid substances suggested as agents to retard the excretion of saline solutions by the kidneys, showed that polyvinyl pyrrolidone (P.V.P.) seemed promising. A saline solution containing a P.V.P. compound and known as Periston was prepared and used in Germany with some success as a plasma substitute during the 1939-45 war and after. Side-effects such as pyrogenic reaction, albuminuria and hæmaturia which sometimes followed its use prevented adoption elsewhere. There is no evidence that any late harmful effects occur. Improved methods of preparing P.V.P., which is a white solid very soluble in water, have permitted the development of a solution known as Plasmosan.¹ Work on the product started in Great Britain in 1947 but only recently have details of its properties appeared (Thrower and Campbell, 1951; Arden *et al.*, 1951). The solution used by us appears to be free from the objections attributed to the original German product, and has proved safe and effective in clinical use. The solution keeps well and needs no special conditions for storage. The composition of Plasmosan is at present as follows:

Polyvinylpyrrolidone	...	...	...	...	3.5 grammes	per	100 ml.
Sodium (Na ⁺)	361 mg.	"	"
Potassium (K ⁺)	22	"	"
Calcium (Ca ⁺⁺)	9	"	"
Magnesium (Mg ⁺⁺)	0.06	"	"
Chloride (Cl ⁻)	582	"	"
Bicarbonate (HCO ₃ ⁻)	17	"	"
Dissolved carbon dioxide (CO ₂)	...	...	...	...	75	"	"

It will be observed that the proportion of the various ions is similar to that in human plasma.

EFFECTS OF PLASMOSAN IN THE BODY

Immediate Toxicity.—From the pharmacological point of view P.V.P., the important ingredient of Plasmosan, is not toxic even when given in high dosage, the lethal dose for laboratory animals being 8 gramme per kg. of body-weight, death being due to cardiovascular insufficiency attributable to hyperviscosity of the blood (Combined Intelligence Objectives Subcommittee 1945). Therapeutic doses are well tolerated. No ill-effects follow the subcutaneous and intramuscular injections of 25 per cent aqueous solutions of P.V.P., in which form it is extremely used in France as a retarding agent for penicillin, insulin, and certain sex hormones.

¹ Now available from May & Baker Ltd., Dagenham, England.

Remote Toxicity.—The most likely late toxic effect of injecting foreign colloid substances into the circulation is the risk of deposition in fixed tissue cells of the body, although this is unlikely with the present preparation, which is so highly soluble and shows so little interaction with other materials. It has been shown (Thrower and Campbell, 1951) that in rabbits subjected to deliberate overdosage with Plasmosan no significant changes could be observed in the tissues examined. In 4 patients to whom 500–1,500 ml. of Plasmosan had been given and who later died from their injury or disease, no macroscopic or microscopic changes could be observed post mortem which could in any way be ascribed to Plasmosan.

Nelson and Lusky (1951) have compared the effects in rabbits of repeated intravenous injections over a two-month period of 10 c.c. per kg. of 6 per cent dextran in distilled water and a 3.5 per cent aqueous solution of a polyvinylpyrrolidone called Periston manufactured in the U.S.A. The one outstanding lesion of the entire experiment was a foam cell storage phenomenon in the animals receiving polyvinylpyrrolidone. The changes were best seen in the spleen and other structures containing reticulo-endothelial tissue. Changes in other organs were noted which also followed dextran infusions. These animal experiments indicate what might be expected from prolonged overdosage on a scale unlikely to arise in clinical practice.

ESTIMATION

When considerable quantities of a substance such as a plasma substitute is introduced into the human body it is important to know what happens to it. The original biochemical tests for P.V.P. were unreliable but by an improved technique it is possible under ordinary circumstances to recover from the urine 75 per cent of the P.V.P. content of Plasmosan, and in one instance as much as 90 per cent. With suitable adjustments this technique can also be used to determine blood concentration levels of P.V.P. (Thrower and Campbell, 1951).

Another method for estimating P.V.P. in body fluids has been recently described by Reinhold and Drabbe (1951) but we have had no experience of its reliability.

EFFECTS OF PLASMOSAN ON WHOLE BLOOD

In vitro different quantities of Plasmosan and whole or citrated blood mix readily, and the same applies under clinical conditions. The clotting-time and bleeding time of patients recently given infusions of Plasmosan are unaffected: blood-grouping reactions are not disturbed: and no hæmolysis is produced. As might be expected the E.S.R. rises after Plasmosan infusions. Magendie *et al.* (1947) using 10 per cent citrated blood *in vitro*, drew attention to the possibility of clotting of transfusion blood given through the same apparatus as Plasmosan due to the interaction of the Ca ion in Plasmosan on citrated blood. We have had no trouble in this respect with blood to which 3 per cent trisodium citrate and 15 per cent glucose have been added.

CLINICAL USE

Plasmosan has been used by us in more than 60 cases, principally to control shock during major operations. Most of these operations have been cup arthroplasties, spinal fusions or equally severe procedures. A smaller number were abdominal operations such as gastrectomies and colectomies.

Whenever possible Plasmosan infusions were commenced before the onset of shock. In a few patients with burns and multiple injuries the opportunity has occurred to give Plasmosan after the onset of shock when its effect has been such as might be expected after using fresh or reconstituted plasma.

Shock may develop quite suddenly during certain orthopaedic operations on patients in good conditions when the hip is dislocated or bony surfaces are being reamed for a cup arthroplasty. The sudden fall in blood pressure can usually be controlled by increasing the rate of an existing Plasmosan drip, but blood was sometimes necessary as well.

Plasmosan is supplied in the standard blood transfusion bottles with a closure adapted for use with the two-needle giving set and easily removed for use with the standard giving set. The appearance of Plasmosan varies from batch to batch, some being tinged with varying degrees of yellowness, others being crystal clear. In a few bottles from an early batch small floccules of a solid material could be seen floating about, but must either have redissolved or been trapped by the filter because no reaction was noticed. It has not been necessary to discard any of the bottles supplied, although some have been stored for a period up to twelve months at ordinary room temperature. The quantity of Plasmosan given varied from 500 ml. to 2,000 ml. The majority of patients to whom the transfusions were given were elderly adults, the oldest being 84, but in a few cases it was given to children with burns. One of the two deaths in this particular series occurred in a child with burns; the other was an adult also severely burnt.

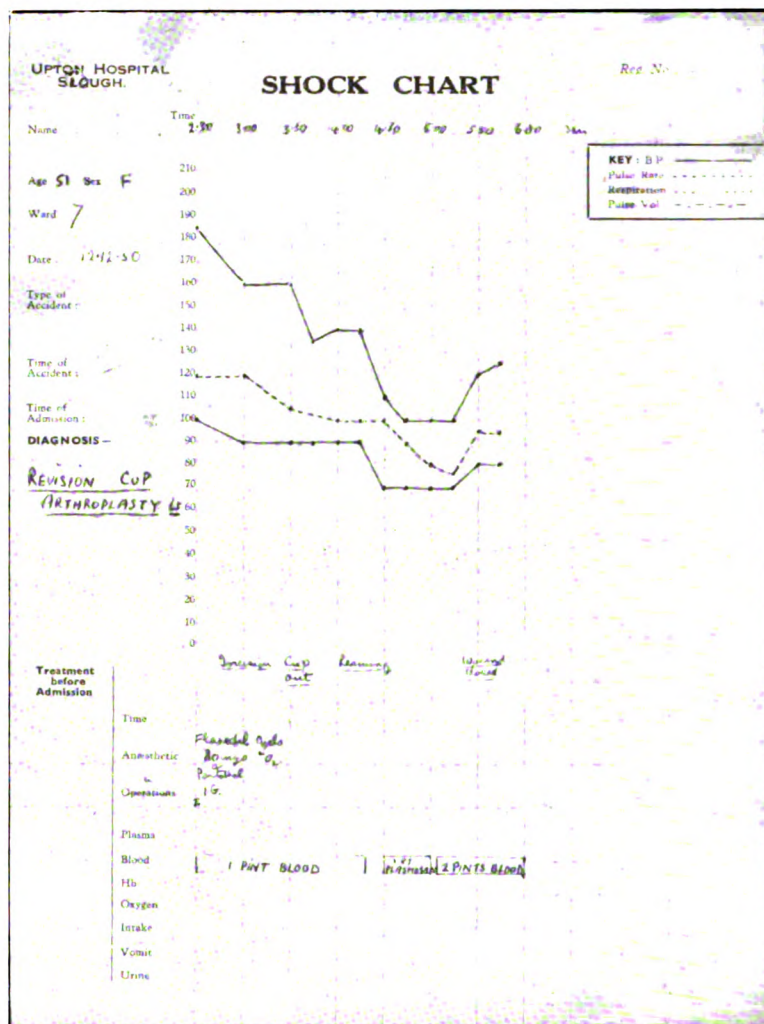
The rate of transfusion varied according to the patients' blood pressure, this being regarded as the main guide to the presence or degree of shock. Serial blood-pressure recordings were noted during each operation and plotted on a shock chart together with the pulse-rate.

During the operation the oral temperature was recorded in a small series but no rise was found. Some patients developed a moderate post-operative rise of temperature, but no more than is usual after a major operation.

Plasmosan was given together with blood in about half the cases, as alone it failed to maintain the blood pressure, if the blood loss was excessive (more than 1,000 ml.) or if the operation was prolonged (over ninety minutes).

Plasmosan and stored blood mixed freely and both flowed satisfactorily through the same giving set. Plasmosan flowed much more freely than blood. On some occasions Plasmosan leaked into the extravascular tissues but no harm resulted. Procaine was also given in the Plasmosan drip (2 grammes/500ml./hour) in a number of cases during and at the end of the operation.

In the average case 500-1,000 ml. of Plasmosan were required at a rate of



500 ml./45 mins. to maintain a satisfactory blood pressure, but on some occasions the rate had to be increased to 500 ml./20 mins.

No post-operative reactions were seen and the wounds in all clean surgical cases healed normally except for an occasional hæmatoma. No cases of late jaundice were seen.

CASE REPORTS

Case 1.—A man aged 40 had a Wilson spinal fusion carried out for an old recurrent disc lesion; duration two hours; 1,000 ml. Plasmosan and 500 ml. blood given. B.P. well maintained. Estimated blood loss 1,000 ml.

Case 2.—A woman aged 74 had a Judet arthroplasty performed for osteoarthritis of the hip. Given 500 ml. Plasmosan and 500 ml. blood. B.P. well maintained. Estimated blood loss 500 ml. Duration 90 mins.

Case 3.—A man aged 45 with bilateral compound fracture of the tibia and fibula was operated on within five hours of injury. Given 1,000 ml. of Plasmosan. Wound toilet carried out, fractures manipulated and plasters applied. Duration 90 mins. B.P. satisfactory throughout.

CLINICAL PATHOLOGICAL TESTS

Post-operative blood counts twenty-four hours later were done on a small number of patients in our recent series and these revealed a low hæmoglobin and red cell count with anisocytosis probably due to hæmodilution. There is no evidence that Plasmosan causes any hæmolysis or jaundice. Blood-grouping tests were repeated the day after Plasmosan infusions; these tests confirmed the pre-operative groups and no difficulty was experienced in the grouping technique in contradistinction to experiences with dextran. Pre- and post-operative bleeding and clotting times were compared in several patients but no alteration was observed. Urine analysis post-operatively was in all cases normal, no hæmaturia or albuminuria being detected.

Various workers during their clinical use of Plasmosan have noticed that the results of some clinical pathological tests may be modified at times by the presence in body-fluids of the large P.V.P. molecule, which has reducing properties. In the blood this may be manifest in a measurable deviation from the true blood-sugar level of the patient. Again, reducing substances may be identified in the urine without sugar being actually present because of the properties of P.V.P. A false positive test for albumin with the trichloroacetic-acid reagent or Esbach's quantitative method may be met. Tests involving the use of cold nitric acid and heat tests are unaffected.

SUMMARY

The chemical and physical properties of a plasma substitute called Plasmosan are described together with practical and clinical details of its use for the maintenance and restoration of the circulatory blood volume.

REFERENCES

- ARDEN, G. P., MANDOW, G. A., and STONEHAM, F. J. R. (1951) *Lancet*, **1**, 1099.
 BAYLISS, W. M. (1919) *See Spec. Rep. Ser. med. Res. Coun., Lond.* No. 25.
 BILLING, B., DONALD, J. B., STEWART, C. P., and WILKINSON, A. W. (1951) *Edin. Med. Journ.*, **58**, 2, 64.
 BOHMANSSON, G., ROSENGVIST, H., THORSÉN, G., and WILLANDER, O. (1946) *Acta. Chir. Scand.*, **94**, 149.
 BULL, J. P., *et al.* (1949) *Lancet*, **1**, 134.
 Combined Intelligence Objectives Subcommittee (1945) item 24, file XXV-54.
 HECHT, G., and WEESE, H. (1943) *Munch. med. Wschr.*, **90**, 11.
 HOLMES, R. C., and THROWER, W. R. (1924) Unpublished data.
 MAGENDIE *et al.* (1948) *Pr. Méd.*, **56**, 200.
 NELSON, A. A., and LUSKY, L. M. (1951) *Proc. Soc. exp. Biol. N.Y.*, **76**, 765.
 REINHOLD, J. G., and DRABBE, C. A. J. VON FRIJTAG (1951) *Am. J. med. Sci.*, **221**, 712.
 THORSÉN, G. (1949) *Lancet*, **1**, 132.
 THROWER, W. R., and CAMPBELL, H. (1951) *Lancet*, **1**, 1096.
 VOORHEES, A. B., *et al.* (1951) *Proc. Soc. exp. Biol. N.Y.*, **76**, 254.

BRITISH PLANNING FOR HEALTH AND WELFARE¹

BY

ELI GINZBERG

*Associate Professor of Economics, Columbia University,
New York City*

THE American reaction to the National Health Service of Great Britain must be adjudged highly negative, particularly if one considers only the evidence that appears in the daily, weekly and monthly press. This negativism is so widespread that it is difficult to remember that there are millions, probably tens of millions, of Americans who are not in the least opposed to the idea of a "free medical service."

There are many and diverse arguments adduced in this country against the British health service. One emphasizes the fact that the national health service represents a major step on the road to socialism. Critics point to the fact that almost all hospitals have been brought under governmental control, and that doctors are no longer permitted to open practices in certain areas. Another argument contends that the health service encourages chicanery. Attention is called to the considerable number of women who on the basis of a physician's certificate entitling them to specified medicines arrange with their druggists to obtain the equivalent value in cosmetics. Extreme cases are cited of sailors recently fitted with expensive dentures who traded them with natives in a far-off country and then returned to England to receive a second and even a third set.

Another charge against the health service centres on the contention that it is contributing to national bankruptcy. The original estimates of the cost of the service were much too low and the current high rate of expenditure has not yet stabilized. Pessimists see no other solution to the monetary burdens on the exchequer short of arbitrarily imposed limits. Many observers are disturbed by the impact of a vastly increased demand for medical services upon the limited number of medical personnel available. In their opinion, the result is clear: a reduction in the quality of care which is being provided.

¹ Reprinted from "The Modern Hospital," May 1950, by kind permission of The Modern Hospital Company and of the Author.

NOTE.—The evaluations reached in this essay primarily reflect the impact of impressions gained during a recent visit to England. The purpose of this visit was *not* to make a study of the health service but, during the course of my researches in other areas, I had occasion to gain some insight into the basic pattern of reforms, of which the changes on the health front are a part.

There is no question about the validity of the foregoing charges, but there might be considerable question as to their pertinency. It is true that limitations have been placed on the freedom of the individual doctor to open a practice, and hospitals have been brought under governmental control. But it is not necessarily a major step toward socialism for Great Britain to try to effect a better distribution of its medical personnel and to improve the co-ordination among its several thousand hospitals. The second charge that individuals have taken advantage of the ease with which they are permitted to obtain drugs and appliances free of charge is also true, but it is questionable whether the "abuse" is substantial, and it is even more questionable whether it will continue; the Government is taking a number of steps to bring it under control. The third contention that the original estimates of the cost of the health service were too low is valid, but the error is understandable; among other reasons, the estimators failed to evaluate properly the large numbers in the population who required dentures, eyeglasses and so forth. Moreover, in assuming financial responsibility for the voluntary hospitals, the Government raised the rate of wages and improved the conditions of employment for various levels of the hospital staff, thereby adding to the total cost. But it is doubtful whether a country, even one in such a precarious financial position as Great Britain, could be pushed to, or over, the brink of bankruptcy by an expensive health service. The vulnerability of the economy must be sought in the structure of its production and trade, not in the costliness of its social services. Doctors may be seeing more patients than they can treat adequately but it is difficult to find the justification for the former situation where a small group received a high level of care while large numbers were neglected.

The general attitude in Great Britain toward the health service is just as positive as the American Press is negative. This does not mean that everyone believes that the health service is working perfectly, but simply that it is working as well as can be expected, and that it represents an advance over the past. We know that there was no determined political opposition to the introduction of the health service, and we know further that neither the Conservative nor Liberal Party is currently challenging it. The cynic might argue that in a democracy no major political party would dare to recommend the reduction or abolition of benefits which the mass of the population has enjoyed. But that is too cynical an answer, for both the Conservative and Liberal parties are recommending major reductions in food subsidies. Even the members of the medical profession, who were most unsettled by the radical changes brought about through the introduction of the health service, are no longer basically opposed to the new structure. There is, of course, a minority of outright opponents, but the majority are restrained critics; they object to one or another aspect of the system.

The fact that the present health service is currently viewed with tolerance, if not with admiration, by the majority of the British public should not lead to the conclusion that the present approach was the preferred one, especially among the medical professional groups. In retrospect the situation is relatively

clear. For several decades, the vast majority of the British working people were covered under the National Health Insurance Act which entitled them to receive medical care, exclusive of the services of specialists. But their wives and children were outside the scheme. Almost everyone in the country was convinced that important changes had to be introduced into the post-war structure. The more conservative would have preferred that the initial changes be limited to bringing dependants under the National Health Insurance Act: broadening the benefits provided under the terms of the Act to include specialists' services, and, finally, evolving a method whereby the Government could have made a sizable financial contribution to the operation of voluntary hospitals without assuming full responsibility for their operation.

It is interesting to reflect on why those who have daily contact with the National Health Service appraise it much more favourably than we who know very little about it. Apparently, the British public is evaluating the health service in terms of the solutions which it is contributing to the problems that faced the country at the end of the war. The predominantly negative reaction in this country to the British health service grows out of an uneasy opinion that it would be a major error for us to follow Britain's approach and to develop a nationalized health service. If we continue to confuse the two approaches, we will gain little understanding of the British experience and we will be unable to profit by it. But we are not the only ones who see the world in our image. The British frequently engage in fantastic generalizations about the health services in the United States: many among them are just as relaxed about exporting their solution to us as we are quick to conclude that the British health service is leading England down the road to ruin.

An evaluation of the British health service should be undertaken first in terms of the specific health problems which faced England at the end of the war; second, we should consider the rôle of the health services within the broader framework of the country's welfare programme. An official publication of the British Government recounts the following major defects in the health service as they previously existed.¹

(1) The limitations of National Health Insurance, which left large numbers without free medical practitioner care and gave those who were covered different benefits, owing to the varying resources of different "Approved Societies." The defects of this arrangement were noted by a Royal Commission as long ago as 1926.

(2) Geographical distribution of hospital and specialist services was uneven, and it was far from true that any person could get the service he required.

(3) With the increasing specialization of centres of medical and surgical treatment, the need for general and area planning of provision was clear.

(4) There was insufficient link among the various services.

¹ Health Services in Britain. British Information Services, I. D. 753 Revised, August 1948, pp. 4-5.

(5) There was a large amount of preventable ill-health and subnormal health, with corresponding loss in efficiency and personal happiness.

(6) Economic status rather than medical need was too often the criterion of eligibility for medical service.

(7) There was too much divided authority, and there was no comprehensive national policy to guide legislative and other developments in the sphere of medical service. There were too many central and local bodies concerned with one or another aspect of the country's health services, and there was insufficient collaboration among statutory bodies and between statutory voluntary bodies.

The impact of World War II should be specifically noted. At the end of hostilities the country insisted on raising the question of whether large numbers of the poor, particularly the children of the poor, were receiving at least a minimum amount of medical care. During the pre-war years large sectors of the poor called the doctor only in emergencies. A reform was long overdue. Moreover, members of the middle class had long found their medical expenses burdensome, particularly in years when one or more members of the family required hospitalization. The drop in real income during the war and immediate post-war years made it much more difficult for the middle class to carry its medical responsibilities. Finally, the war played havoc with the hospital system. Before the war there had been no effort to balance the staffs of the municipal and voluntary hospitals, or any control over the distribution of patients between these two systems. During hostilities, they were combined and operated more nearly as one system. It would have been inconceivable at the end of the war to return to the previous pattern.

Many voluntary hospitals which had been under financial pressure during the 1920's and the 1930's found themselves in an even worse plight in the post-war years because of the higher levels of personal income taxes which had an adverse influence on charitable contributions. In short, the country had to have an answer to three simple but insistent questions: How to provide essential medical care for all of the poor; how to reduce the burden of costs on the middle class; how to ensure the continued operation of an insecure hospital system that had both inadequate capital and inadequate operating funds.

The solutions to these pressing problems might have been delayed had it not been that during the war Great Britain set about reassessing its approach to the problem of social security, of which the health services are an essential part. At the very beginning of the famous Beveridge Report which was published in 1942 by the Coalition Government we are reminded that social insurance is an attack upon Want, but Want is only one of the five giants on the road of reconstruction. The others are Disease, Ignorance, Squalor and Idleness.¹

Beveridge introduces his analysis with the statement that Britain has made

¹ Beveridge, William: *Social Insurance and Allied Services*, Cmd. 6404, 1942, p. 6.

progress in developing a social security system "on a scale not surpassed and hardly rivalled in any other country in the world." But he went on to add that "in one respect only of the first importance, namely, limitation of medical service, both in the range of treatment which is provided as a right and in respect of the classes of persons for whom it is provided, does Britain's achievement fall seriously short of what has been accomplished elsewhere."¹ The following notation is found in Appendix F of the Report:

"Health Service.—Nearly all the countries which have a sickness insurance scheme provide medical treatment, not only for the insured person, but for his wife and children, including in most cases both general and specialist medical attendance at home, and hospital treatment. Countries which are listed by the International Labour Office as given a medical service which is materially more extensive than that provided in Britain under National Health Insurance include Denmark, France, Germany, Hungary, Roumania, Norway, New Zealand and the Soviet Union."²

The strategic rôle of a health service within the broad framework of a comprehensive programme of social security is made explicit by Beveridge's assumptions concerning the foundations of a satisfactory scheme. In addition to the need for family allowances and the maintenance of full employment, Beveridge emphasizes the rôle of "comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of a community."³ It should be noted that among the six principles of social insurance which Beveridge lists as guides to the operation of a comprehensive social security system, he includes unification of administrative responsibility, adequacy of benefits, comprehensiveness, principles which doubtless influenced the plans for a National Health Service.⁴

There was an organic relation in Beveridge's approach between the need for comprehensive health and rehabilitation services and a satisfactory social security system. He put it in these terms: "It is a logical corollary to the payment of high benefits in disability that determined efforts should be made by the State to reduce the number of cases for which benefit is needed. It is a logical corollary to the receipt of high benefits and disability that the individual should recognize the duty to be well and to co-operate in all steps which may lead to diagnosis of disease in early stages when it can be prevented."⁵

Beveridge left open the question of whether payment toward the cost of the health service should be included in the social insurance contribution, but he did specify that the comprehensive services should be "provided where needed without contribution conditions in any individual case."⁶ He took the position that "restoration of a sick person to health is a duty of the State, and the sick person, prior to any other consideration" and he went on to add that this position is in accordance with the Draft Interim Report of the Medical Planning Commission of the British Medical Association, which stated

¹ *Ibid.*, p. 5.

² *Ibid.*, p. 292.

³ *Ibid.*, p. 120.

⁴ *Ibid.*, pp. 121-122.

⁵ *Ibid.*, p. 158.

⁶ *Ibid.*, 159.

that it was imperative "to render available to every individual all necessary medical services, both general and specialist, and both domiciliary and institutional."¹

The aim of the National Health Service Act which came into force on July 5, 1948, has been defined by the Ministry of Health as an Act "to make all the health services available to every man, woman and child in the population, irrespective of their age, or where they live, or how much money they have; and to make the total cost of the Service a charge on the national income, in the same way as the Defence Services and other national necessities."² In this same booklet, the Ministry of Health explained that a new scheme was needed because previously the health services "were everybody's business yet nobody's full responsibility."

The other major shortcomings were that: more than half of the population had to make private arrangements for medical care; many middle class people were excluded from compulsory and voluntary insurance plans with the result that a serious illness could be ruinously expensive for them; medicine was becoming departmentalized to a point where the family doctor had too much to do because he had too many patients, and specialists charged their private patients heavy fees because they were not paid for their work in voluntary hospitals, and therefore settled only where they could find wealthy patients.³

We have noted earlier that many believed that the new National Health Service represented too radical a break with the past; that it was not necessary to introduce so many reforms at one time. Although this position has an inevitable attraction to those who believe that we can frequently make progress faster by selecting a small rather than a large number of objectives, it is well to note the contrary opinion of an expert American observer, Dean Willard Rappleye, who recently stated that "the entire health service programme would have been confused, perhaps inoperative, if the general practitioners were not included in the whole plan from the beginning, because it would have been difficult, if not impossible, to separate the functions of the general practitioners from the local health authorities, the specialists and the hospitals, all of which form essential parts of the organic whole."⁴ Apparently the experts differ concerning the relative advantages of the fundamental approach and the partial approach to the reform of the British health services. However, since Britain was committed to developing a comprehensive programme of social security, the country was encouraged to venture a fundamental reform of its health services.

The Ministry of Health takes the sensible point of view that the Act was only a means of "getting the new deal started." It lists the following six aims of the new deal.

(1) *Up-to-date material resources.* A large programme is needed, as soon

¹*Ibid.* ²The National Health Service, S.O. Code No. 32-389*, p. 2. ³*Ibid.*, pp. 3-4.

⁴Rapleye, Willard C.: The National Health Service of Great Britain, Josiah Macy Jr. Foundation, 1949, p. 9.

as it becomes practicable, for rebuilding and re-equipping hospitals and clinics and for constructing health centres.

(2) *Adequate human resources.* More health workers of most kinds will have to be trained as soon as possible.

(3) *Better distribution of resources.* The aim must be to bring more of the services to the places where the patient can conveniently use them.

(4) *Greater teamwork in serving the patient.* This is necessary among family doctors, within the hospital service, and among all the services, to avoid the departmentalizing of medicine which prevents doctors from seeing the patient as a "whole person" rather than as a "case."

(5) *Encouragement of variety and experiment.* Medical needs must be adequately met everywhere, but it would be wrong for them to be met everywhere in the same way. Medicine thrives on experiment and comparison of different ways of doing things; uniformity of method or belief is its enemy.

(6) *Encouragement of preventive and "positive" outlook on health.* All agree that the nation will not be using its doctors to the best advantage so long as they are confined so much to healing and have so little time for preventing illness.¹

These six aims of the new health service can be grouped under two objectives: "to enlarge facilities and bring equipment up to date as quickly as is practicable—and above all to make what there is equally accessible to all."² As far as equal accessibility is concerned, the health service is succeeding. And the three major problems which faced the country at the end of the war—provision of medical care for the poor, the reduction of medical costs for the middle class, and the establishment of a more secure financial structure for the hospitals—have been reasonably well resolved. But a less optimistic conclusion may be reached in assessing the progress that has been made, or is likely to be made, toward accomplishing the long-run objectives.

The bases for doubt, if not for pessimism, are twofold: the Government promised too much, and the economy is too poor to permit the promises to be realized. A good illustration is the planning for health centres which were to play a major rôle in the new system. This was the promise:

"A completely new local health service for which the Act makes provision is that of Health Centres. These will be buildings in which accommodation will be provided for a group of family doctors and perhaps also for dentists, pharmaceutical services, a maternity and child welfare centre, and nursing and midwifery staff of Local Health Authorities. They may contain facilities for specialist and out-patient services in connexion with the hospitals. Health Centres will be a means of bringing the branches of the service into close relationship—of linking the preventive and welfare services (including health education) of the Local Health Authorities with the curative work of the family doctors and dentists and of the hospital and specialist services."³

In 1943 in a discussion following an address to the Royal Statistical Society.

¹ The National Health Service, op. cit., pp. 34–35.

² *Ibid.*, p. 3.

³ *Ibid.*, pp. 23–24.

Beveridge was challenged by Sir William Elderton who feared that his planning for social security failed to take account of the fact that England would be a poor country after the war. Beveridge disagreed: "We were not a poor country after the last war—we shall have had the enormous stimulation of invention which comes from war . . . we shall be the same people with practically the same resources and with more invention; why should we look forward to being poor?"¹

Against this optimistic bias must be set the statement of Sir Stafford Cripps in his last budget message:

"But there is not much further immediate possibility of the redistribution of national income by way of taxation in this country; for the future, we must rely rather upon the creation of more distributable wealth than upon the redistribution of the income that exists. Total taxation, local and national, is now more than 40 per cent of the national income, and at that level the redistribution of income entailed in the payment for social services already falls, to a considerable extent, upon those who are the recipients of these services.

"We must, therefore, moderate the speed of our advance in the extended application of the existing social services to our progressive ability to pay for them by an increase in our national income. Otherwise, we shall not be able to avoid entrenching, to an intolerable extent, upon the liberty of spending by the private individual for his own purposes."²

In simple terms, the additional resources required for the implementation of a comprehensive system of health services are not currently available, nor does it seem likely that they will soon become available. And therefore the implementation of the long-term aims of the Act may be indefinitely postponed. It is this likelihood which justifies the belief that the Government "promised too much."

What can we in the United States extract from the English experience? It is well to recall that we are not free of the challenges which faced the British at the end of World War II—the obstacles confronting the poor in obtaining essential medical care; the high costs of medical care borne by the middle class, and the straitened financial position of many voluntary hospitals. It is true that the *per capita* income in this country is considerably higher than it is in England; the tax burden on the middle class is considerably less, and our voluntary hospitals have not suffered bombing damage. But these differences should not obscure the parallelism in the political pressures for a more equitable distribution of health resources. The fact that we have more margins for experimentation and reform in the United States than were available to the British provides us with the opportunity to evolve a set of solutions which fit our specific circumstances and are free of the disadvantages which are inherent in the British health services.

¹ Beveridge, William: *Social Security: Some Trans-Atlantic Comparisons*. Reprinted from the *Journal of the Royal Statistical Society*, Vol. CVI, Part IV, 1943, p. 331.

² *Labor and Industry in Britain*, Vol. VII, No. 2 (June 1949), p. 63.

We have pointed out that in our opinion the British Government promised too much and that it will be unable to find the additional human and material resources which alone could enable it to meet the major aim of the National Health Service—"the encouragement of a preventive and positive outlook on health." There are additional morals which can be extracted from the British experience. It may seem paradoxical that the same Government, whose long-term objectives will probably flounder because of its neglect of the economic factor, overemphasized the benefits which could accrue by altering the existing pattern of payment for medical care. It is very doubtful that the altered economic arrangements will result in a substantial redistribution of medical personnel in favour of the areas presently short of doctors: in an improvement in the priority system for admission of patients to hospitals; in greater "team-work" among the general practitioner, the specialist and the public health officer. There is no logical basis for assuming that a change in the method of paying for medical care will accomplish these desirable objectives. Such evidence as has begun to accumulate justifies a sceptical conclusion. In fact, the more satisfactory the present economic arrangements the more likely that the present structure of medical care will become frozen.

It is true that the old system suffered from a lack of integration and effective area planning, from a lack of co-ordination among the major parts of the health service. The British had every reason to aim to improve matters by "planning," but effective planning, voluntary or governmental, is exceedingly difficult within the framework of a democratic society. First, there is the problem of enticing sufficient numbers of good people into Government service, and the further difficulty of retaining them. A second problem is that even the best planners with the best plans can seldom foresee the secondary consequences of their actions. In solving one problem they inevitably precipitate others.

Two illustrations out of recent experience are relevant: Although it is a major objective of the new health service to bring the general practitioner into more intimate contact with the other members of the medical team, the experts believe that the system is actually working in the opposite direction and is leading toward an ever-increasing estrangement. The general practitioner has no place in the hospital, and he has no close association with the specialists to whom he refers a large number of his patients. Second, it is general knowledge that the scales of recompense worked out by the Government for various groups of medical personnel, particularly the differences in rewards for general practitioners and specialists, must soon be adjusted because of the abnormalities which they are encouraging in the training and allocation of doctors. Yet one can foresee that every effort to change the present pattern of incentives will in turn create new problems.

Although the major impetus to a fundamental reform in the health services grew out of the widespread conviction that England needed above all else a positive attitude toward health; and although the basic planning emphasized the preventive mission, the current trend is in the direction of a heightened emphasis on curative medicine. This neglect of the preventive services doubt-

less reflects the insatiability of consumer demand for medical attention once the major financial barriers have been removed.

We have noted that Beveridge believed that it was axiomatic that a medical service should be organized to provide care "where needed without contribution conditions in any individual case." But the obvious is not necessarily right. In addition to the contention that without a financial barrier consumer demand will reach appalling heights, there may be a more fundamental reason to avoid constructing a situation in which the individual makes no contribution at the time when he seeks help. No state, not even the most prosperous and liberal state, can give health to its citizens. The individual must play an active rôle. It would be a fundamental error in social planning to indoctrinate the individual with the point of view that health is a right which he can obtain from a group of medical practitioners in the employ of the State. There may be ways of keeping the individual conscious of his responsibilities and actively concerned with his health, but it is a fact that in present-day society a useful and intimate relationship exists between expenditure and consciousness. The desirability of removing financial barriers which prevent individuals from obtaining essential care does not justify the establishment of a completely free service. There are intermediate solutions.

The implications for the United States growing out of this review of the British planning for health and welfare can now be summarized:

(1) The danger of the Government promising more than it can possibly render because of a basic shortage of resources and an inability to redistribute those which are available without the use of compulsions inimical to the basic philosophy of a democratic society.

(2) The unlikelihood that even radical changes in the prevailing pattern of paying for medical care will accomplish the important structural changes which would lead to an increase in the quantity and quality of care which people receive.

(3) The desirability of introducing a greater amount of planning into the allocation and integration of medical resources should not obscure the problems attendant upon developing and implementing effective plans.

(4) The danger that if the financial barriers to receiving medical aid are completely removed there will be an increased emphasis on curative rather than preventive services.

(5) The desirability of removing financial barriers which make it impossible for the sick and injured to receive essential medical care does not imply that all services need be made completely free. It is important for the individual to remain actively concerned about and responsible for the maintenance of his own health.

In 1943 Beveridge pointed out in his address on "Social Security: Some Trans-Atlantic Comparisons" that three factors had to be borne in mind when assessing conditions in the United States and England. First, the greater variety

of standards of income and living in different parts of the United States (including the larger number of self-employed persons); second, the differences in division of responsibility between national and local government; third, and most important, the difference in attitude toward government. "In Britain, in spite of the resolute independence of the individual citizen, there is far less fear, on the whole, of government and government machinery for the achievement of social purposes than there is in the United States—in the United States it is not always easy for the British visitor to escape the impression that the free citizens of that great country still regard all governments as their ancestors regarded the government of George III—."¹

We can see from his approach that Beveridge never held the naïve belief that it was either desirable or practical for the United States to adopt a particular solution that had been evolved in Great Britain. The parallelism which he saw, and which he stressed, was the need and the desirability in both countries of developing comprehensive systems of social security to remedy the shortcomings of an industrial society.

Americans may be antigovernment, but not to the extent of refusing to rely on government when the occasion demands. Our position seems to be approximately as follows: "There is no reason for government to enter an area which is satisfactorily handled by voluntary and private effort, but there is every reason for government to concern itself with vital unmet needs of the populace when the efforts of voluntary and private groups fail."²

A review of the problem of federal hospitalization led to the conclusion that:

"Critics of the federal government frequently forget the basic fact that the expansion of federal operations is almost always a reflection of a failure of individuals, voluntary effort, local and state governments to provide for essential needs. Those who are truly concerned about the indefinite growth of the federal government must act to strengthen the other resources of the society rather than to weaken the federal government."³

In the final analysis, the manifold difficulties that the British are encountering in planning for health and welfare derive from the impoverishment of their country as a result of two major wars and the failure to modernize their industrial structure. We fortunately have not been impoverished by the two wars nor have we permitted our industrial structure to become outmoded. We are in a much more fortunate position. The British may have set themselves too high an objective but we must be careful not to set ours too low. We, too, must provide essential medical care for the poor, reduce the excessive medical costs on the middle class, and ensure the financial stability of our hospital system. But we must do more. We must constantly strive for a higher

¹ Social Security, op. cit., p. 321.

² Ginzberg, Eli: *A Pattern for Hospital Care*, Columbia University Press, 1949, p. 288.

³ Ginzberg, Eli: *Federal Hospitalization*. Reprinted from *Mod. Hosp.*, April, August, and December 1949.

quality of medical care and for improvements in preventive services. And we must seek to accomplish these purposes through an efficient and economical use of our resources. These are difficult objectives, and the solutions will not come easily, but they must be found. And they cannot be accomplished by a single piece of legislation, not even by a host of legislative measures. But we must move ahead. Americans, like their British cousins, want the benefits of medical science, but not at the cost of medical progress.

A SURVEY OF THE PROBLEM OF ENURESIS FROM THE UNIT ASPECT

BY

Captain N. JONES, L.R.C.P., M.R.C.S.Lond.
Royal Army Medical Corps (N.S.L.)

INTRODUCTION

THE problem of nocturnal enuresis in the Services, as distinct from civilian life, is considerably emphasized by the fact that the enuretic is compelled to disclose his failing to the world at large, the moment he lives a communal existence. No longer can it be regarded as a family skeleton; and, not surprisingly, the enuresis becomes more severe and asserts itself to such an extent that the patient is compelled to seek haven with his medical officer.

It is intended to discuss the problem here solely from the Regimental Medical Officer's point of view and there is no attempt to discuss the more debatable principles of ætiology and therapeutics favoured by the various schools of psychological thought. Rather it is intended that we regard ourselves, not as profound psychiatrists, but as counsellors, with the added quality of organized scientific knowledge and thought to guide us.

The R.M.O. is the patient's first contact with an Army medical attendant, and therefore it becomes important that the Unit M.O. is capable of appreciating the type of case that confronts him.

It must also be realized that it is at this juncture where the closest co-operation with the unit may be obtained. It is surprising the number of apparently intelligent and experienced Company Commanders who fail to regard the enuretic with any sympathy. However, it is encouraging to realize that most of these officers are only too ready to alter their views when the subject is briefly explained to them by their own medical officer. Thereafter they are anxious to help, and later share one's enthusiasm when a successful outcome is achieved.

Any case of enuresis requires unlimited patience from the M.O. concerned and he will be tried often to the utmost. Sudden, dramatic results are not to be expected, but the successful treatment of the enuretic, when it does come, is ample reward and no less sweet for the time and trouble involved. At all times the keyword is PATIENCE.

PRELIMINARY PROCEDURE

Usually, the enuretic is first encountered on normal sick parade. Either he comes voluntarily, or he is sent by one of his superiors, after a soiled mattress has been noticed.

No attempt should be made to do anything at that moment, the patient is referred back to duty and an appointment entered to see him during an afternoon set aside for this purpose. At least half an hour, and preferably longer, should be allowed for the subsequent interview.

One must realize that to refer the case to hospital, without further ado, is disastrous; quite apart from the fact that the diagnosis has yet to be established.

To ensure that bedwetting does occur involuntarily, unit co-operation is essential. The man's commanding officer is seen and arrangements made for the soldier to sleep adjacent to a sensible N.C.O., who can be relied upon to awaken the patient at regular intervals throughout the night and to confirm whether or not bedwetting has occurred. This is an important part in the preliminary procedure, and it is best to talk to the N.C.O. who is selected to undertake this responsibility and explain to him what is wanted. He must be guided in his duty and every effort made to ensure that he is fully aware that we are at this stage trying to establish the diagnosis. His intelligent execution of this task is of paramount importance to both the patient and ourselves. In particular is he to be warned of the reputed enuretic who will try to urinate in bed in the hope that he may be discharged from the Army on medical grounds. These cases are easily sifted if all fluids are withheld from an early hour in the evening and the routine described adopted for a few successive nights. The N.C.O. must also be quite certain that with the enuretic, it is URINE that has been voided and it is not merely a case of excessive perspiration. The man must not be placed in a guard room and this is in fact referred to in Eastern Command Medical Administrative Instruction Number 150 of 1949.

The most suitable accommodation is a double-bunk side room, containing the patient and the N.C.O. The main barrack room dormitory should not be used.

Once it has been established that nocturnal enuresis does in fact occur, then the patient is advised to sleep with a groundsheet between the mattress and the drawsheet until further notice. Any mattresses already damaged are certified as not being wilfully destroyed by the patient.

ROUTINE EXAMINATION

The first interview on which the man is seen is worthy of careful planning and it is advisable to adopt a definite, fixed routine.

1. Having made a fixed appointment, the patient should not be kept waiting. If it was arranged to see him at 1400 hrs., then he should be seen at that time, and not at 1430 hrs., or later.
2. See him on his own. Any orderly or clerk should be dismissed from the room and instructions issued to the medical staff, that apart from genuine emergencies you are to be left undisturbed throughout the interview.
3. It is better to wear a white gown or coat for the occasion. By this simple procedure, the soldier is offered the psychological approach of addressing

- a doctor rather than a superior officer. He will also be more inclined to divulge traits of habit and facts about himself, which he certainly would not admit to anyone else.
4. As in other diseases, the strict routine of history, physical and finally special examination should be adopted. Although it is admitted that the latter part will reveal no abnormality in the majority of cases, there is undoubtedly a tendency to concentrate on the history alone and neglect the physical examination. This is to be deprecated. Apart from the fact that a clinical examination is necessary to exclude organic disease, the patient invariably gains confidence in his physician, when he realizes that he is getting a thorough "overhaul."
 5. No more should be attempted at this interview.
 6. Before he leaves the consulting room, it is useful to ask the patient directly whether he thinks you can cure him. The answer often helps one to gain some insight of the soldier's mental attitude. If the reply is a straightforward "no," do not argue the point; just leave it at that.
- It is pertinent to state that "no" is the usual answer of the National Serviceman, resentful of his service and ready to jump at the slightest chance of being released from his commitments.

SUBSEQUENT INTERVIEWS

During the subsequent interviews, the examiner has more opportunity to pursue aspects of the history in greater detail, and at leisure. At this stage one establishes the direct relationship of the onset of the enuresis to the soldier's life. In particular the relationship between the onset of the disease and military service is determined.

The patient should not be rushed in the hope that quick results are obtained and each case should be allowed to progress gradually at a steady pace.

These interviews should be used also to discuss any problems that the patient may have, on a "man to man" basis. The whole object is to gain his confidence. I am personally convinced that the cure lies within the man himself and the doctor's role is a semi-passive one, in that he allows his patient to express openly, his innermost desires, successes and frustrations, without fear of ridicule or reproach from his audience.

It is better to remain aloof from the parents by any contact whatever, in the type of enuretic seen in the Army. The Unit M.O. is unfortunately in no position to deal with them adequately, especially since the majority of parents dislike criticism, whether justified or not. Moreover, most of the parents themselves are often emotionally unstable.

CLASSIFICATION OF CASES

It is important to try and realize what type of case should be and can be dealt with by the Unit Medical Officer unaided.

(1) *Gross Psychiatric Dysfunction*.—There is obviously some gross underlying functional disturbance. These cases are best referred to a competent

psychiatrist immediately. Any attempt at complicated psychiatric therapy, such as psycho-analysis, will result in increased severity of the enuresis to which may be added the far more serious risk of precipitating an acute psychological episode. The mental trauma thus incurred may be far more difficult to repair than it was to initiate.

(2) *Gross Organic Disease*.—If any gross organic disease is encountered, the case should be referred to the appropriate specialist.

Hypothyroidism is quoted by Mitchener as a cause occasionally encountered. One should also bear in mind the rarer pituitary disturbances, such as basophil adenoma (Cushing's syndrome), although in such cases there is polyuria rather than true enuresis.

(3) *Minor Infection*.—Such causes as the helminthic infestations and cystitis result in increased frequency of micturition which may be sufficient to simulate enuresis very closely. They are also sufficiently frequent to warrant mention.

There is no psychological disturbance and once the infection is irradiated, the enuresis stops.

(4) *Main Group*.—The majority of cases belong to this final group. There is neither evidence of gross psychological disturbance nor organic disease. No source of infection resulting in bladder irritation can be found.

The various ætiological factors are far too numerous to mention individually, but they vary from straightforward maladjustment to Army life to the cases of minor degree of guilt complex, frequently founded on a popular misconception of the penalties of masturbation.

To this group we must add also the idiopathic enuretic who is encountered only too frequently. It is idiopathic in the sense that as far as we are able to determine, no dominant factor in the ætiology can be determined with any certainty.

It is with this main category that the R.M.O. is chiefly concerned.

TREATMENT

Before dealing with this section, it is emphasized again, that we are considering only those cases to be dealt with entirely by the Unit Medical Officer, and therefore strictly within that officer's resources. The more profound lines of psychiatric therapy, including psycho-analytical study, is not expected; moreover, if the cases are carefully selected, it is not necessary (*vide* classification).

Treatment is considered under the following headings:

(1) *Reassurance*.—The patient is reassured both in himself and in his value to society.

Enuretics are frequently introspective with a well-defined inferiority complex. He must be provided with a staff to lean upon, in the form of his doctor, to whom he can turn for comfort at times of emotional stress.

The significance of enuresis is gradually shown in its true perspective and

explained that it should not and must not remain a dominant factor in one's life.

(2) *Bladder Exercises*.—Various forms of bladder exercise for enuretics have been devised and each series invites considerable controversy from opposing schools of thought.

The only one we suggest here is offered without comment and it has been known to obtain some success.

The exercise itself is divided into two acts:

(a) *Mid-stream control*.—Twice daily the patient voluntarily interrupts the flow of urine during micturition at mid-stream. After ten seconds interruption, the act is completed normally.

(b) *Regularity*.—The patient visits the urinal and assumes the procedure for micturition at pre-set intervals throughout the day, irrespective of whether he has the desire to go or not.

These intervals are lengthened each successive day by fifteen minutes over a period of fourteen days. They commence at half-hourly intervals on the first day, until the bladder is not emptied for up to three and half to four hours at the end of the fortnight.

(3) *Drugs*.—Drugs are not necessary always in the treatment of enuresis, but a few well chosen and correctly used often reinforce other lines of therapy.

Ephedrine hydrochloride, gr. $\frac{1}{2}$ p.o., may be given each morning; or instead amphetamine sulphate mg. 5–10 p.o. in the late afternoon.

Phenobarbitone gr. $\frac{1}{2}$ b.d. may be needed to sedate the highly excitable nervous subject in the early stages of treatment.

Unfortunately there is no drug available which is an unqualified success in enuresis and the correct place for those mentioned is as an adjuvant to the other lines of therapy proposed.

CONCLUSION

We have tried to outline briefly what can be done in the treatment of enuresis by the unit medical officer.

No attempt has been made to discuss psychiatric principles and the simpler therapeutic measures have been outlined.

This problem is one upon which few doctors are content to spend their time. That it does exist on a saprophytic footing within the service community is recognized and the onus of dealing adequately with such cases must rest upon the Unit Medical Officer in charge of troops.

In conclusion we quote the sage who remarked that, "Marriage is invariably a cure for all enuretics." so that when driven to despair we can always save this drastic therapeutic measure to be played as our final trump card.

I am indebted to Lt.-Col. H. Pozner, R.A.M.C., the Command Psychiatrist at the Queen Alexandra Hospital, Millbank, for the guidance he has given me over such cases of enuresis that I have encountered in the Army and also for his help and criticisms in the writing of this article.

ANÆSTHESIA IN WAR

BY

R. W. COPE, D.A., F.F.A.R.C.S.

Consultant Anæsthetist, University College Hospital, London, England

Late Major, Royal Army Medical Corps

THIS short communication is submitted with great diffidence since the last anæsthetic personally administered to a battle casualty was on July 22, 1945. No contact with war surgery has been made since. Experience immediately before that made up a total of 4,328 anæsthetics to battle casualties spread over the previous six years. In order to assess those experiences a little history is necessary. In the second Libyan campaign beginning on November 18, 1941, and ending February 6, 1942, the author was working in a mobile surgical team, which travelled from the wire of the Egyptian frontier to Benghazi and retreated back again to El Adem, near Tobruk. 240 operations were performed using thiopentone and oxygen on 146 occasions. Local analgesia was used 8 times and spinals nil. At El Adem took place a small meeting of four anæsthetists attached to teams which had made a similar journey. Between them, 672 operations were performed using thiopentone alone or combined with another drug on 548 occasions.

It was in this campaign that the fatal ease with which a gross overdose of thiopentone can be given was well demonstrated, and this is what was written soon after to a friend, "the patient was an Italian P.O.W. with through and through wounds of the right buttock with extensive sloughing and bruising. The general condition was very poor for he had been wounded three days before. While waiting for the operation the patient was noisy and talkative. Many British patients were waiting quietly for operation at the time and after only a superficial examination of his general condition I slipped in morphia $\frac{1}{4}$ grain intravenously. Peace amongst the waiting patients was restored. When he was put on the operating table, again he became talkative and emotional, so that I remember thinking I must stop this noise quickly, especially as neither the surgeon nor myself could understand a word he was saying. He was given pentothal $\frac{3}{4}$ gramme fairly rapidly. While the wound was being inspected respiration ceased, manual inflation of the lungs with oxygen was promptly begun but no carotid pulsation was visible, and the patient was dead."

Another lesson concerning administration was learnt then and found of value in the succeeding four years. It is best explained in a letter dated February 1942, "a desert battle is full of surprises, which affect the forward medical units, just as much as the combatant troops. The surgical team and

its parent unit seldom have the latest news on the state of the war. In deciding the site for a surgical unit to work, it is difficult for the local commander to say that that particular area may not be visited by some patrolling A.F.V.s. All these facts, together with the established surgical principle of early operation for every battle casualty, makes it of the highest importance to deal with a collection of waiting patients as quickly as possible. 'Get on with the job' was a thought very much present in the minds of all the members of our unit, whether 2 or 22 patients appeared at the theatre door. To help in this idea the anæsthetic service can play a part. First, the surgeons must not have to wait between their cases for a man to be anæsthetized. This means that induction must be rapid, and it should be complete before the outer bandages or clothes are removed. This small point is kind to the patient and allows the surgeon to remove the dressings much quicker than if he was working on a conscious man. Then the operation starts, and although it would be most unusual for the surgeon to take more than one hour over any case yet his operating time must never be limited by any consideration of the anæsthetic method or drug used. The ease of maintenance of anæsthesia after this rapid induction is also very important so that two tables may be kept going continuously for a long operating session."

Ether was the agent used for muscular relaxation often vaporized by some modification of Flagg's can. My own was made from a Cow & Gate Baby food tin with nail holes knocked in the lid. There were several modifications by other workers of this safe, efficient "draw-over" method of vaporizing ether. *Chloroform* had no place in our plan of anæsthesia either then or later except in one interesting aspect. This was in *providing analgesia for the removal of severely wounded men from tanks*. The method used was a copy of the well-known chloroform ampoule broken inside a gauze pack used for obstetric analgesia. By experiment at the Base 40 minims of chloroform were placed in each ampoule. These 2 cases were described in a medical friend's diary, who was later killed in a motor accident.

Case 1.—L/Cpl. D. Right leg and thigh almost blown off by bomb, pelvis pulped, perfectly conscious and in great pain even after morphia $\frac{1}{4}$ grain given intravenously. Imperative to leave somebody with him, until he died or move him on to a stretcher. This latter was done with the aid of chloroform anæsthetic. Rapid easy induction. Anæsthesia lasted for 5 to 7 minutes. Died 2 hours later.

Case 2.—Pte. S. In this case chloroform anæsthesia was used while a fragment of shrapnel was removed from the scrotum from which it was protruding and keeping up hæmorrhage. In this last case an ampoule of 50 grammes of chloroform from a German first-aid kit was used. This was found to be far more than was required, even with an improvised mask and alfresco conditions.

Later in Italy the author's Field Surgical Unit began its long attachment to the New Zealand Expeditionary Force. This lasted from Taranto in the heel of the country to the canals of Venice in the North. The Unit was attached either to their C.C.S. or to one of their Field Ambulances. Throughout two winters and two summers success and failure were shared in all their aspects. No people in the world could have shown greater friendship to the small surgical

unit attached to them. Their characteristics are indelibly printed in memory, for they showed so clearly what is perhaps the only sensitive quality in war, namely friendship. T. D. M. Stout, late Consultant Surgeon to No. 2 N.Z.E.F., describing abdominal injuries of the New Zealand Division during the Italian campaign found that nearly half of the post-operative deaths occurred in the first twenty-four hours, namely 46 patients out of a total of 102, and in the next twenty-four hours a further 7 deaths occurred.

On May 5, 1944, a small Anæsthesia Conference took place between the Anæsthetists of the U.S. 5th Army and the British 8th Army at the 16th U.S. Evacuation Hospital, Casanova, Italy. Capt. Irving Greenfield, U.S.M.C., read a short paper on "Anæsthesia in Abdominal Surgery Pertaining to War Casualties" in which he stressed the help given by making an intercostal block in the mid-axillary line from the 4th to the 11th dorsal segments using 2 per cent procaine or metycaine. Major K. A. Beecher, Consultant in Anæsthesia and Resuscitation to 5th Army, spoke in Discussion. He warned us of the grave danger of anuria following massive blood transfusion or the over-dosage of sulfa drugs.

Throughout this time ether remained the chief agent for obtaining muscular relaxation. That ingenious and sturdy apparatus known as the Oxford Vapourisor had arrived. For the author this machine proved the most valuable piece of equipment ever received. Even when no ether was needed and continuous $\frac{1}{2}$ per cent thiopentone in normal saline was the sole anæsthetic agent the Vapourisor connected to oxygen was always strapped to the patient. A feeling of complete command of the patient was given by gentle pressure on its inflating bellows. Also some rather amateur controlled respiration was given with this apparatus while a lung was sutured or a thoraco-abdominal injury repaired. One further picture flits across the memory, two large New Zealand Maori soldiers lay in adjacent beds each with a pleural effusion which was aspirated one morning. The supposed local anæsthetic used was in fact the stock bottle of morphine solution and it was soon apparent that each had received an injection of 8 to 10 grains of *morphia*. Soon artificial respiration was being performed by the aid of the Oxford Vapourisor attached to each patient. Rhythmical inflation continued for some hours with a happy and successful result in each case. The sight of those two bellows being raised up and down by the patients themselves was a fine sight for the devoted ward orderlies.

Now it must be recorded that some workers continued to use the Field Service pattern of the Boyle's machine, and others obtained their muscular relaxation with heavy doses of thiopentone. This last practice always seemed to be fraught with danger. During an active operating session the anæsthetist should have many responsibilities besides producing efficient and safe anæsthesia. This is especially true if the anæsthetist happens to command the unit in question, and it may here be mentioned that when eight Field Surgical Units were first made in Middle East in early 1942 four were commanded by a surgeon and four by an anæsthetist.

Time passes and the last Italian river is reached. Years before, as far away as Cairo, there had been repeated requests for cyclopropane from many anæsthetists. Only a trickle ever arrived until preparations for the battle for this last river crossing were being made. Then quite suddenly all Field Surgical Units were issued with an American Heidbrink Military machine, unlimited cyclopropane and soda lime. What a change this was in very truth from the days of the Cow & Gate ether tin! The patients received from this battle were in much the same condition as those from so many river crossings. These three major cases are taken from the personal diary of the author and show the use of cyclopropane:

"Cpl. B. Wounded, Schu mine, 4 hours Bi-lateral traumatic amputation of both legs above knees. Wound of testicle and left hand. Very ill indeed. Had 2 pints of Plasma. 2 of blood. B.P. 75/? Pentothal 0.1 gramme. Respirations became small, inefficient gasps. Cyclo. and O₂ started, much improved in colour, quiet respirations. No pulse at temples or wrists. B.P. at end of operation 80/60. Awake. Seen in ward ¼ hour later, quite rational, warm." The next note is as follows, "yesterday had bilateral t.a. Today acute abdomen, hæmaturia. B.A. 90/50. Looks fairly fit. Pentothal 0.2 gramme + Cyclo. + a little ether. Hole in bladder and rectum. Colostomy and cystostomy. B.P. at end of opn. 110/60. Coughing. This man returned to full consciousness quickly from his second operation and did not succumb till the fifth post-operative day. Inquiry amongst neighbouring F.S.U.s shows no one else can report a case of survival in a man who has suffered a bilateral traumatic amputation of both legs, and a penetrating wound of the abdomen at the same time.

Multiple wounds, Sgt. P., U.S. Army. Shell wound. Traumatic amputation of foot, + burns both hands and face. Multiple wounds over other limbs and face. Very ill, but well resuscitated, B.P. 140/90. Pentothal 0.3 gramme + Cyclo. Quiet respiration always, no apnœa. B.P. 115/70 at end. Time 1 hour, awake.

Gfr. G., German P.O.W. Wounded 30 hours ago. Large wound rt. thigh, other smaller ones. Gas Gangrene ++ established to abdominal wall. Very pale, anæmic, sweating, fever, looks ill. Pentothal 0.3 gramme + Cyclo. Quiet, and no anxiety. No respiratory arrest. Amputation through upper thigh. Bleeding ++. Blood poured into vein at a stream. B.P. just before femur sawn = 100/50. B.P. leaving the theatre = 130/90. Still pale, but conscious and rational. On return to ward, remained fit, no B.P. fall later."

After that battle an attempt to assess the value of cyclopropane for such work was made, and the following extract from that opinion is quoted here: "after 82 cases it is impossible to be dogmatic, and it would therefore be incorrect to say that cyclopropane was essential for forward surgery. After all, 2,800 other patients in the same campaign have received anæsthetics from me, and few, if any, have suffered irreparable harm, despite the lack of cyclopropane. On the other hand, I believe through this past experience, especially that of the last month, that cyclopropane should be made available whenever asked for in the forward areas."

THE FUTURE

The new boundaries of physiology have been pushed further out, yet war teaches us what one can do without. In this connexion it is most earnestly hoped that those who plan the anæsthetic service for war realize that the

present source of natural curare may cease or be inadequate in amount. None of the muscle relaxants, synthetic or natural, are perfect in that *all* have side-effects. Therefore it is hoped that research workers from many countries will strive to find the chemical compound having a motor blocking effect and nothing else. Such a compound will have immense use for the battle casualty anæsthetist. On the sensory blocking side, several agents, such as intravenous pethidine (Demerol) or thiopentone, will have their place in enormous quantities.

With regard to apparatus, it would appear that present designs in the manufacturer's catalogues *could have no place at all in battle. Superb strength in construction and complete simplicity in design should be their keynote* and this is not yet apparent. Water's canister with bag attached to two flowmeters of oxygen and nitrous oxide may safely carry the most ill patient through any period of respiratory paralysis brought about by a muscle relaxant.

In a future conflict let it never be forgotten by any of us that once a patient has reached the surgical team his war is over, for the time being, and whether he be friend or foe, black or white, he is some Mother's son, and is deserving of the highest degree of kindly efficiency.

ACCOUNTING IN MEDICAL EQUIPMENT DEPOTS

BY

Major J. J. WIESE

Royal Army Medical Corps

IN the Spring of 1942 following an investigation of the procedures which then existed for dealing with the provision, supply and depot accounting of medical equipment it was found necessary to introduce changes to satisfy the conditions of war and the numerous new techniques with their consequential expansions in the range of medical equipment. And so it was that a TPM from A.M.D.1 brought about my transfer from 214 Field Ambulance (56 (London) Division) to the A.M.D.3 centre dealing with medical equipment in all its many aspects, and I was to embark on an era of experience in this particular subject, unique and without parallel in the Corps.

On arrival at Hobart House I met some old friends which was most encouraging, but first impressions of a new place or job are often misleading. So were mine when I found my place at what appeared to be the smallest size of table ever intended to act as a desk, then, after asking for materials with which to commence work I was reluctantly allocated one notebook, one pencil and one sheet of blotting paper. Pen and ink were not included as the person responsible noticed I possessed a fountain pen!

PRELIMINARY STAGES

The tempo of work in A.M.D.3 was high and after a brief introduction to my new task I had a bundle of files to read over and study the background of the case which preceded my posting. Within forty-eight hours and with the haziest outline of the scheme ahead, I found myself being speeded off with a specialist Ordnance Officer and Major Bert Prince to ordnance depots, the Army Medical Store, Ludgershall, and several command medical stores to see the merits and demerits of accounting methods at each. These visits were illuminating, my hazy mind began to clear, and soon it became vividly apparent to me why changes in A.M.D.3 and our home medical store depots were essential.

Internal changes were being developed in A.M.D.3 to deal with increased contract work through the Ministry of Supply, the Lease-Lend programme and Eastern Group (C.E.P.O.F.) supply arrangements, which together with the additional maintenance of the United States, Canadian, French, Polish and other allied forces in the U.K. left little in the medical equipment sphere of problems that was not being encountered. Concurrently with these developments my special task showed that three basic problems would have to be overcome to achieve a reasonable modicum of success in our depot accounting. Firstly,

an entirely new system of accounting was essential; secondly, the system would have to be introduced at depots and thirdly, but by no means the least important, a re-modelling of the P.L.M.E. must be put in hand.

THE ACCOUNTING SYSTEM

Agreement was reached that our accounting system would be based on the visible card index method used in Ordnance depots, but modified to suit special procedures connected with medical equipment. The study of uses and movements of each piece of paper connected with accounting in a depot is an experience in itself, but to build up an accounting system from this study, with the elimination of every possible waste of effort and satisfying every transaction from the placing of an order with a maker or agent and eventual delivery of the article to the depot and onward issue to a unit, stocktaking and audit of the depot records, gave me a completely new outlook on these backwoods of our service. In addition it made me realistically aware of the value of the varied collection of forms and the importance attaching to the meticulous compilation of each, starting with the humble unit indent. However, a system was devised and worked out in detail while a team of 6 R.A.M.C. clerks was collected and given basic training at an ordnance depot, so that they could be attached to a medical store depot and effect the change-over in accounting without interruption of normal work, then instruct the depot staff until they could carry on without the team.

A radical change at medical stores depots was obvious and almost certain to meet with opposition. The method of approach and encouragement of a depot staff to participate whole-heartedly in this "revolutionary idea" was the first trying round, but once won the rest of the contest ran in our favour without exception.

THE GUINEA-PIG

With the system ready and the team trained in the principles but without actual experience it was decided to select the Command Medical Store, Warrington, as the guinea-pig. This depot was chosen because it was of moderate size with a large geographical scope of supply to medical and dental units of every size and variety, and stocktaking had been pronounced "impossible" since the outbreak of war, when the depot formed at Peninsular Barracks and had later moved to a new site near Bank Quay Station. The Warrington experiment provided the essential practical experience for the team, and having established and proved the new system it was most encouraging and gratifying to find it worked smoothly. Still better it was not only accepted by the depot staff but later on it was lauded as a method to solve the accounting difficulties previously suffered.

A NEW STORE

By this time a new army medical store was in the process of being organized and established at Walton, Liverpool. At this depot we were to have an added experiment but not without doubts as to the healthy development of our weaning babe. The team moved to Walton whilst the depot was rapidly filling

up with medical equipment at a greater speed than staff to deal with it, but that was only part of the difficulty. The depot was immediately called upon to supply the majority of maintenance needs of medical equipment for the North Africa campaign which was now in full swing. The pressure of outward supply became so acute that loaded incoming rail wagons were held at the sidings whilst depot staff checked the contents, then re-stencilled bales and cases in the wagons to allow of complete consignments being re-directed to ports of shipment. Even so the team and depot staff faced the situation, overcame these teething troubles and instituted the new accounting system with complete success. Later on this depot employed a high percentage of A.T.S. and was the birthplace of the trade "Storewoman, technical (R.A.M.C. duties)."

PROGRESS

Command medical stores at Worcester, Harefield, Aldershot, Maidstone, Kimbolton, Nottingham, Keighley and Edinburgh were visited by the team and each successfully converted to the new accounting system. Some depots were overcrowded and working under difficulties which reduced their efficiency. These were given special attention. Improvements in layout, re-orientation of stock and office accommodation did not make them ideal but desirable benefits were created to minimize the man-handling of all goods entering, housed, and leaving the depots.

Both during and after completion of the change at each depot close interest and liaison were maintained to find the answer to new problems arising, ensure that progress continued and to acquaint the team with details of every snag to equip them for the major task still to be carried out at the Army Medical Store, Ludgershall. At the same time the P.L.M.E. was being dissected, sifted, sorted, rearranged, items numbered and priced, but the acute paper shortage (this still seems to exist!) demanded the revised publication in 1944 being condensed to the previous size which was disappointing but unavoidable.

THE LUDGERSHALL DEPOT

The team moved to Ludgershall and set about their job at this depot in good spirit and with complete confidence. After the long preliminary detail preparation the change in accounting was successfully accomplished, without the loss of one working day, although the assembly of field medical equipment, A.F. I 1248 equipments and world-wide maintenance was still proceeding at full pressure.

With work completed at Ludgershall the team was soundly experienced in the new accounting but changing conditions prevented their services being retained as a team for this special work, and it was not long before they were lost to the Corps as their age and service groups came forward under the release scheme.

CONCLUSION

The new accounting introduced many terms such as "Control number," "Average monthly issue rate," "Due in," "Due out," "Monthly maintenance

figure," "Provision signal," etc. Medical and dental units have now become familiar with them also with changes in old-established Army forms and the forms we adopted from the Ordnance supply services.

There is no finality to the study of unit and depot accounting. The most practical or perfect looking scheme, especially when dependent on human efficiency or manual operation, is always open to improvement. Many seemingly short-cuts at the unit end of accounting are impracticable when investigated and found not to dovetail into depots' procedures having much wider complications and conditions to satisfy.

I would like to add my tribute to those who helped me and I hope they are enjoying health and success in their civil occupations. Also, I must add that the clerical and storewomen of the A.T.S. employed in our home depots did magnificent work of an extremely high standard. The success of these girls completely nonplussed and deflated many old timers who considered a medical store to be a holy place for men only.

Old place names and titles have been retained in this article so that readers who may have contributed to the birth and growth of my "baby" may recall their own experiences. Reflection on the trials, tribulations and eventual success of the scheme fills me with a particular satisfaction and a desire to help in bringing about further improvements which may simplify but fortify accounting procedures for medical equipment, until it is a subject devoid of the horrors it has held for so long.

APPENDIX

Explanation of abbreviations—

- A.F. I 1248** The Army Form I 1248 is a book laying down the authorized basic scale of medical equipment for a medical or dental unit of a field force. There is a series of these books, each being appropriate to one type of unit, e.g. A.F. I 1248-3 is the scale for a casualty clearing station.
- A.M.D.3** The branch of the Army Medical Department, War Office, responsible for provision and supply of medical equipment and all related questions such as depot organization, accounting, etc.
- A.T.S.** Auxiliary Territorial Service.
- C.E.P.O.F.** Central Provision Office of the Eastern Group in India (now extinct).
- P.L.M.E.** Priced List of Medical Equipment. A catalogue showing each item of medical equipment normally available for military medical and dental units.
- T.P.M.** Teleprint message (or signal).

Brief outline of the visible card index accounting system:

A method using 8 in. x 5 in. account cards in place of the old large loose-leaf ledgers, which were bound in heavy protective covers.

The cards, one for each item, are fitted into holders of the pocket type and these are arranged in trays in alphabetical sequence by sections of the P.L.M.E. and in such an order that, although the cards overlap, the Section, Stock Number and Nomenclature of the item on each card in a tray is visible. When a card is filled on both sides it is removed, the stock balance entered on a new card and this is fitted in the space where the completed card was held. The old card is filed, again in the same alphabetical order, in a "dead" box to await audit.

The trays hold 70 cards each and are housed horizontally in steel cabinets with drop fronts. Cabinets are in sizes to hold 12 or 16 trays (a total of 840 or 1,120 account

cards); they can be locked and are fireproof. The number of cabinets required are arranged on tables or stands and the clerk is conveniently seated in front so that any tray can be withdrawn, the card required "flicked" up with a finger and posting entries made as necessary. This manipulation is speedy and eliminates the fatigue and inconvenience associated with handling heavy ledgers and searching for folios.

Issue vouchers are prepared showing the articles and quantity of each to be supplied. Pertinent details, i.e. date, control number, quantity and stock balance, are then entered on the relevant account cards constituting a pre-posting transaction. By this method the physical stock available immediately after each voucher is entered is visible on the card. When the voucher is completely posted it is released to the storehouse for selection, packing and despatch of the goods.

Post-posting of issues in the old type loose-leaf ledgers resulted in delays of days, or even weeks, after the goods had been removed from stock, consequently the ledger stock figures were outdated and did not reflect the true situation.

This note does not embrace the many other transactions met with in depot accounting. They are, however, methodically woven into the procedure and designed to save time and labour in the working of a depot and arising out of that the despatch of goods to consumers in the shortest possible time.

AN ACCOUNT OF A SMALL OUTBREAK OF INTESTINAL SCHISTOSOMIASIS IN ERITREA

BY

Major H. FOSTER

Royal Army Medical Corps

Captain J. G. LEITCH

Royal Army Medical Corps

AND

Captain I. REDSTONE

Royal Army Medical Corps

OUTBREAKS of schistosomiasis amongst British Troops are not common, and as far as is known, there has been no record of one since that in Nigeria in 1944.

TOPOGRAPHICAL

Eritrea is a dry, barren and waterless country. It has no permanent rivers except the Setit, which separates its south-western boundary from Abyssinia. There are, of course, wells dotted along the dry courses of river beds, and on the plateau and foothills a few small pools fed by streams are to be found, but generally during the dry season the country can justly be described as waterless.

HISTORICAL

Eritrea is the oldest Italian colony, having been acquired by them in 1896, but it was not until 1934 that the first case of intestinal bilharzia was described, and this account is believed to be one of the first outbreaks known amongst Europeans in that country.

Professor G. Ferro-Luzzi of the Italian hospital in Asmara, who gives us this information, has been there since 1939, and assures us that generally not more than ten cases, mostly Eritrean, are admitted yearly to his large hospital of 900 beds, although there seems to be no doubt that the disease in mild form is much more widespread, and what surveys have been done indicate that in one particular area a carrier rate of 0·8 per cent exists. Even in mild cases where symptoms are slight, no notice is taken by natives of their condition, and with communications being difficult, the vast majority never report sick.

DISTRIBUTION

The disease is supposed to be commonest on the central plateau and in the foothills and intermediate lowlands bordering it, being rare in the plains.

It must be emphasized, however, that the disease is very local and that an extensive field survey has not been done.

ZOOLOGY

The molluscs found to be naturally infested in Eritrea are *Planorbis abyssinicus*, *Planorbis ruppellii*, and to a lesser extent *Planorbis boissyi*. They are flat snails 0.25–0.75 in. in diameter, black or dull grey in colour, and evidence of infestation is suspected when whitish or red nodules are observed in the antennæ or bare parts.

Conclusive evidence can, of course, be furnished by the microscopical examination of these nodules and of the bare parts.

The snails themselves can be found near the roots of aquatic plants or clinging to the sides of streams and ponds.

ÆTIOLOGY

The platoon involved, consisting of one officer and twenty-four other ranks, were out on anti-shift operations and bathed or washed in a pond fed by a spring, in a concrete tank also fed by a spring, and in the deep part of a stream between June 28 and July 3, 1950.

Of the number exposed, the officer and 12 men contracted the disease and were treated in hospital in Eritrea: one other went home on demobilization and was diagnosed and treated at the Liverpool Royal Infirmary, and one more was admitted to another military hospital where he was found to have an eosinophil count of 40 per cent and a consolidated right upper lobe, but negative stools, urine and sputum: he must, however, be strongly suspect.

It is considered possible that others may well have been diagnosed and treated in various hospitals in U.K. on their return without our being notified, making the attack rate rather high.

Three civilians who bathed in two of these areas named, also contracted the disease making the total of 16 cases treated in hospital in Eritrea.

SIGNS AND SYMPTOMS

The average time before the onset of symptoms was four weeks, the shortest period being one week when two men had attacks of urticaria. The commonest symptom was diarrhœa, beginning acutely with watery stools in 6 cases, and insidiously in 10, blood and mucus being present in varying degrees in 10 cases.

Bronchitis due to the passage of cercariæ through the lungs was present in 10 patients, and *urticaria* in 7. Some complained of loss of appetite, night sweats, loss of weight, and fever which in some cases reached 103° F., and vague abdominal pains, but the commonest complaints were those first enumerated—diarrhœa, bronchitis and urticaria. The liver was enlarged and tender in 4 cases, and the spleen palpable in 1.

Eosinophilia was not constant and varied between 56 per cent and 4 per cent, but most cases showed an increase of 15–20 per cent.

DIAGNOSIS

It must be confessed that as intestinal bilharzia is so uncommon among British troops it had not been our practice to consider this infection in the

differential diagnosis of diarrhœa whether or not the stools contained blood and mucus, and the two original cases were in hospital for ten days before the true diagnosis was made.

The two cases were both isolated in a side ward as clinical bacillary dysentery, and the possibility that the diagnosis might not be correct was suspected when neither had noticeably responded to sulphaguanidine, and as both had bronchitis and a high remittent pyrexia.

A microscopical examination of the stools did, however, clear up all doubts.

The picture of bronchitis, diarrhœa with blood mucus in the stools, and a high remittent pyrexia would appear to be a classical triad of symptoms in intestinal bilharzia; but unfortunately not all cases showed this, for watery diarrhœa without the presence of blood may be the only symptom, and a case beginning in this way was similar in all respects to a "gyppy tummy."

In others, looseness of the stools may be the only complaint, a not uncommon condition in tropical countries which may be due to quite different causes; repeated examination of the stools may be necessary, together with an intradermal test and a rectal or sigmoid swab.

One case, however, with a clear history of having bathed in infested water on many occasions had classical symptoms and an eosinophilia of 56 per cent, but ova were never found.

It may be pondered whether an intradermal test for bilharzia should not be done in every case of urticaria in tropical countries where repeated stool examinations have been negative.

DIFFERENTIAL DIAGNOSIS

Bacillary and Amœbic Dysentery.—Microscopical examination of the stools would exclude bilharzia.

Acute Appendicitis.—When the first two cases were diagnosed, it was remembered that the graded surgeon had been called in two days previously to examine a man in the general medical ward who had had diarrhœa with some guarding and pain in the right iliac fossa, and whom we had suspected of having a subacute inflammation of the ileocæcal area. Appendicitis was not diagnosed, and once again the association of bronchitis could not be explained away. When, however, the two original cases had been diagnosed, it was mentioned that the case of suspected appendicitis was a member of the same platoon, and on examination ova were found in his stools in large numbers.

Tropical Eosinophilia.—This was considered in a civilian of 48, who had persistent bronchitis, slight diarrhœa, pyrexia, and an eosinophilia of 56 per cent. Repeated examinations for worms and ova were negative, and he was initially treated with intravenous arsenic as a case of tropical eosinophilia, a disease very rare in Eritrea.

Urticaria.—This condition was suspected to be due to an intestinal worm, but stool examinations were negative.

Doubtless, had the investigations included an intradermal test for Bilharzia, the true cause would have been revealed.

Paratyphoid Fever.—Temperature, diarrhoea, and bronchitis made this condition suspect.

COMPLICATIONS

Cerebral Involvement.—Pte. T, during his course of stibophen, complained of weakness and paræsthesia down the left side of the body, and was transferred to another military hospital where *S. mansoni* were found in the stools, urine and sputum, but not in the C.S.F. on two occasions.

He had two further six-day courses of nilodin there, and appeared to regain almost full power on the left side, but still had a patchy left-sided anæsthesia with bordering areas of hyperæsthesia and tingling of the left leg.

Brigadier W. R. D. Hamilton, the then Consulting Physician, M.E.L.F., thought the symptoms were probably schistosomal in origin and not the result of antimony therapy, and this view is supported by Professor Ferro-Luzzi.

The patient was eventually transferred to U.K. with his condition considerably improved.

It is believed that cerebral complications are rare in intestinal schistosomiasis.

TREATMENT

All cases were treated either with foudadin or stibophen; the dosage given and method of administration were the same as that laid down in the "Memorandum on medical diseases in tropical and sub-tropical areas," i.e. first day, 1.5 c.c., second day, 3.5 c.c., third day, 5.00 c.c., and thereafter, 5 c.c. on alternate days until a total of 50 c.c. had been given. The drug was given intramuscularly in the buttocks.

It was not uncommon for drug reactions to be experienced, and those most noticeable were, pyrexia, sometimes up to 102° F., cough, headache, abdominal pain, and vomiting, but these symptoms gradually wore off as tolerance was established, and the average number of c.c.s of antimony solution needed before symptoms of *Bilharzia* showed signs of abatement was 35.

Other symptoms of the disease such as cough and diarrhoea were treated symptomatically.

RESULTS

Of the sixteen cases treated, 6 needed a further full course of antimony. This was given after an interval of three months. Sigmoidoscopy was then performed. In those cases for whom it was considered necessary to give another course this examination revealed infection of the rectal and sigmoid wall with small yellowish submucous nodules, and slight looseness of the stools. Eggs were found in 3 cases.

Three months later, that is six months from the original diagnosis, all patients were examined and found to be symptomless with nothing detectable on clinical examination and negative stools.

The eosinophil count in the soldiers ranged between 1 and 7 per cent, and 2 of the 3 civilians had counts of 12 per cent and 22 per cent, the latter case being the one where eggs had never been found, and whose eosinophils were at

one time 56 per cent. He seems not to have had the response to antimony which was so marked in the other cases.

PROPHYLAXIS

Bathing or washing in any untreated fresh water was of course contrary to Middle East Standing Orders, and, on the condition being diagnosed, the attention of all was immediately drawn to this.

Those men who had returned to U.K. during the incubation period were all contacted by letter in which they were urged to report at once either to the nearest military or civil hospital for examination.

D.D.M.S. Western Command where the men were domiciled was also informed of the action we had taken.

Under normal circumstances, where such facilities exist, snails can be destroyed by copper sulphate, 1 part per million, and cercariæ by super-chlorination, or by allowing the water to stand for forty-eight hours after collection.

ATTACK RATE

To date, out of the 25 exposed, 13 were treated in this hospital, one in the Liverpool Infirmary, and another was treated in another military hospital for symptoms highly suggestive of Balharzia, although stools, urine and sputum were all negative.

In questioning the men, it was noted that all had either bathed or washed very frequently in the infested water, so that it is not possible to say what the average exposure was. Theoretically, it is supposed one short immersion in infested water is enough, provided there are sufficient numbers of cercariæ.

CONCLUSIONS

It seems that intestinal schistosomiasis is much more widely spread amongst the native population in Eritrea than is supposed, and a proper field survey would probably reveal a high incidence in certain localities.

Stibophen and fouadin in doses as officially recommended gave satisfactory results although 6 out of 16 cases were given a second course.

SUMMARY

A small outbreak of intestinal schistosomiasis in Eritrea is described which was acquired either by washing or bathing in infested pools.

All cases responded to fouadin or stibophen, although one had still a high eosinophilia—22 per cent.

A six months' check up has revealed absence of ova in all cases, and no signs or symptoms suggestive of latent infection.

Eosinophil counts ranging from 1–7 per cent were found in soldiers after six months, and it is considered that those who gave an eosinophil count on the high side of normal may have done so because of a reaction to dead ova.

It is unfortunate that so little has been heard of those men who had left

for U.K. during the incubation period as it is not possible to estimate the attack rate and the overall results of treatment.

We wish to thank Major-General A. J. Beveridge, *O.B.E.*, *M.C.*, Director of Medical Services, M.E.L.F., for permission to publish this paper, and desire to acknowledge the help and advice given by Brigadier W. R. D. Hamilton, *O.B.E.*, formerly Consulting Physician, M.E.L.F.

Our thanks are also due to Lt.-Col. W. A. M. Scott, R.A.M.C., and Lt. S. G. Lavery, R.A.M.C., for notes on two of the cases transferred to their hospital, and to Professor G. Ferro-Luzzi, Professor of Medicine in Eritrea, for his willing help and for having made available to us his monograph on intestinal Bilharzia in Eritrea.

SOME CLINICAL OBSERVATIONS ON THE PROPHYLACTIC AND THERAPEUTIC USE OF PROGUANIL IN MACKINNON ROAD

BY

Lieutenant-Colonel R. M. JOHNSTONE, M.C., M.A., M.B., Ch.B., F.R.C.P.E.

Royal Army Medical Corps

Adviser in Medicine, Headquarters, East Africa Command

IN 1944, Curd, Davey and Rose [1] selected Proguanil as a chemical substance worthy of a clinical trial as an antimalarial drug. This clinical trial was carried out by MacGraith *et al.* [2] on Service personnel recently returned from West and East Africa and suffering from malignant tertian malaria. It was concluded that proguanil was completely effective in the treatment of malignant tertian malaria. With a similar trial on personnel suffering from benign tertian malaria we are not here concerned.

An extensive investigation into the prophylactic and therapeutic effects of proguanil was carried out at Cairns, Australia, by Fairley [3] using a New Guinea strain of *Plasmodium falciparum*. He concluded that, as far as malignant tertian malaria is concerned, proguanil is a complete causal prophylactic; that it acts most effectively upon the pre-erythrocytic forms of the parasite and that 50–100 mg. of the drug taken between 39 to 131 hours after being bitten will afford complete protection; that it is also a powerful schizonticide and prevents nuclear division and the formation of merozoites; and that 300 mg. given daily for ten days will result in a 99 per cent radical cure rate.

As a result of these experiments, proguanil began to supersede mepacrine in the prophylaxis and treatment of malaria in many parts of the world during 1946 and 1947. Since then reports from different parts of the world have been published tending to show that proguanil is not so efficient as it was originally thought to be. Field and Edeson [4] working in Malaya have reported that in the Tampin area increasing doses are needed each year for the radical cure of malarial patients. And they have briefly discussed the possibility of the natural development of resistant strains. Covell, Nicol, Shute and Maryon [5] working with a Lagos strain of *Plasmodium falciparum* found that proguanil was a complete causal prophylactic but that it failed to effect a radical cure when used alone in patients suffering from malaria experimentally induced with this strain. Bruce-Chwatt and Bruce-Chwatt [6] working in Nigeria confirm these findings with regard to the therapeutic effect of proguanil on the Lagos strain and are also convinced that cases have occurred in which proguanil has failed as a causal prophylactic.

Proguanil has been in use as a prophylactic and therapeutic agent in Mackinnon Road since October 1948—during the period from October 1948 to September 1950 there were 185 cases of malignant tertian malaria in British personnel who were supposed to be taking prophylactic proguanil in doses of 100 mg. daily. During the six months from October 1948 to March 1949 these cases came under the care of Major Hugh Droller, R.A.M.C., and totalled 44. The remaining 141 cases came either directly or indirectly under my care.

Before he left Mackinnon Road, Droller [7] wrote a report on his experiences with proguanil. He claimed that overt attacks of malignant tertian malaria had occurred in patients who had been conscientiously taking 100 mg. of proguanil daily; that trophozoites of *Plasmodium falciparum* could be found in the blood stream of some people who were conscientiously taking 100 mg. of proguanil daily, although these people were free from symptoms of malaria; that trophozoites could be found in the blood stream of patients admitted to hospital for other reasons, such as, for example, dysentery; and that out of 15 cases, treated for malignant tertian malaria with 100 mg. of proguanil eight-hourly, 3 cases had relapsed.

In presenting the additional data which accumulated during my our tour of duty in Mackinnon Road, I have selected the year from the beginning of September 1949 to the end of August 1950 for detailed review, because during this period the population of Mackinnon Road remained fairly constant with a mean of 1,200 and a range of ± 200 . Furthermore, subdivision into quarterly periods gives for the most important quarter a mean population of 1,100 with a range of ± 20 .

Quarterly period		Mean population	Range
September 1, 1949–November 30, 1949	...	1,200	± 150
December 1, 1949–February 28, 1950	...	1,100	± 20
March 1, 1950–May 31, 1950	...	1,200	± 50
June 1, 1950–August 31, 1950	...	1,350	± 60

During the period September 1949 to August 1950, 122 cases of malignant tertian malaria were treated: ring forms of *Plasmodium falciparum* were found in the blood stream of 118 patients; in 4 patients the diagnosis was made on clinical grounds only. 74 of these cases occurred during the quarter from December 1, 1949 to February 28, 1950. This gives an incidence of 100 per 1,000 per annum for the whole period with a peak of 268 per 1,000 per annum during the quarter December 1949 to February 1950.

These 122 cases may, in the first place, be divided into: (a) Those with satisfactory prophylactic histories; (b) those with unsatisfactory prophylactic histories; (c) those in whom the prophylactic history is unknown.

Prophylactic History			
Satisfactory	Unsatisfactory	Unknown	Total
74	27	21	122

In taking the prophylactic history, it was explained to the patient that no disciplinary action was envisaged, if he had failed to take proguanil regularly, and that the information was required solely for research purposes. By this means a frank admission of gross irregularity in the ingestion of proguanil was obtained in 27 cases. The 74 patients who are recorded as having satisfactory prophylactic histories were carefully cross-examined and in some cases minor irregularities were revealed; for example, failure to take proguanil on Sundays or during weekend leave in Mombasa. But these Minor irregularities could not be correlated with the incubation period and were shorter in duration than would appear necessary from Fairley's work for the establishment of the erythrocytic cycle, and consequently they have not been regarded as justifying the relegation of the cases to the unsatisfactory group.

In the second place, these 122 cases may be divided into: (d) Those who developed malaria without any apparent precipitating factor; (e) those in whom a precipitating factor was present.

<i>No precipitating factor</i>	<i>Precipitating factor</i>			<i>Sundry</i>	<i>Total</i>
	<i>Diarrhœa</i>	<i>Tonsillitis</i>	<i>Infective hepatitis</i>		
63	36 (28)	10 (5)	5 (2)	8	122

During the period September 1949–August 1950, the number of cases of dysentery and diarrhœa, of tonsillitis and pharyngitis, and of infective hepatitis was as follows:

<i>Dysentery and diarrhœa</i>	<i>Tonsillitis and pharyngitis</i>	<i>Infective hepatitis</i>
253	48	15

These figures have been submitted to mathematical treatment and the probabilities for the chance coincidence of these diseases with malaria have been calculated and are shown in brackets in Table above.

If, instead of taking the figures for the whole year, we take these for the quarter December 1949 to February 1950, we get the following results:

<i>No precipitating factor</i>	<i>Precipitating factor</i>			<i>Total</i>
	<i>Diarrhœa</i>	<i>Tonsillitis</i>	<i>Infective hepatitis</i>	
32	31 (5)	8 (1)	3 (1)	74

The calculated figures for the chance coincidence of these diseases with malaria are shown in brackets. It is concluded that these diseases have a true causal effect in precipitating overt attacks of malaria.

When we combine the two subdivisions shown in first and second Tables we get the following results:

	<i>Prophylactic History</i>			<i>Total</i>
	<i>Satisfactory</i>	<i>Unsatisfactory</i>	<i>Unknown</i>	
Dysentery and diarrhœa	26	3	7	36
Tonsillitis and pharyngitis	7	—	3	10
Infective hepatitis	5	—	—	5
Sundry	8	—	—	8
No precipitating factor	28	24	11	63
<i>Total</i>	<i>74</i>	<i>27</i>	<i>21</i>	<i>122</i>

From this table, it is clear that there were 28 cases in which the prophylactic history was satisfactory and in which no precipitating factor was present. In other words, 23 per 1,000 of the population at risk developed overt malignant tertian malaria for no apparent reason. Droller's initial finding that overt attacks of malignant tertian malaria may occur in people who are conscientiously taking 100 mg. of proguanil daily is thus confirmed.

Droller's second finding—that parasites may be found in the blood streams of healthy individuals who are conscientiously taking 100 mg. of proguanil daily—has recently been investigated by Captain D. G. Rushton, R.A.M.C., Pathologist at the Military Hospital, Mackinnon Road. With the assistance of Headquarters, Mombasa Area, arrangements were made for 200 British personnel to take 100 mg. of paludrine daily under the supervision of an officer. Their blood was examined for parasites before the start of the experiment and again on the thirteenth and sixteenth days of the experiment. Rushton [8] obtained the following results:

<i>Date of collection</i>	<i>Positive slides</i>	<i>Negative slides</i>	<i>Attacks or symptoms of malaria during previous month</i>
Mid December 1949	1	199	Nil
Mid January 1950	5	155	Nil
Mid February 1950	Nil	118	Nil

Droller's second finding is thus confirmed. It is interesting to note that in Mid January 1950, Rushton found an incidence of positive films of 32 per 1,000 as this figure is comparable to the incidence of 23 per 1,000 previously found for patients developing overt malaria for no apparent reason.

Droller's third finding—that parasites may be found in the blood streams of patients admitted for other diseases—has also been confirmed. During the period September 1949 to August 1950 malarial parasites were found in the blood streams of 25 patients who were admitted to hospital for other reasons and in whom the entire absence of symptoms suggestive of malaria precluded a subsidiary diagnosis of this disease being made.

No attempt was made to confirm Droller's fourth finding—that relapses occurred when patients were treated with proguanil alone—as this had already been confirmed by Covell *et al.*

The two standard courses of treatment used were as follows:

Course "A": Mepacrine alone, 4 tablets t.d.s. on day 1
 Total 4.2 grammes. 3 tablets t.d.s. on day 2
 2 tablets t.d.s. on days 3-4
 1 tablet t.d.s. on days 5-7

Course "B": Mepacrine and Proguanil.
 Mepacrine 0.9 gramme on day 1; Proguanil 0.6 gramme daily for 10 days.

53 cases received Course A and 59 cases received Course B.

Of the remaining 10 cases, 7 received intravenous quinine or intramuscular mepacrine in addition to one of the standard courses, and 3 cases, having failed to respond to Course B, were treated successfully with Course A.

It was impossible during the period September 1949 to August 1950 to obtain any objective data about the relative efficacy of the two standard therapeutic courses. It was originally intended to use length of stay in hospital as a means of contrasting the two standard courses. But so many extraneous factors were found to affect length of stay in hospital that it was abandoned as a thoroughly unsatisfactory measurement. The rate at which parasites were cleared from the blood stream was considered as a possible measurement, but this was not implemented owing to the additional burden that it would have placed on an understaffed laboratory. Reliance had, therefore, to be placed on the patient's statements about their symptomatology and on the clinical impressions of the medical officers. These impressions confirmed the views expressed by other workers; that mepacrine leads to the abatement of fever and other symptoms in 48 to 60 hours, while proguanil takes 72 to 96 hours to produce the same result.

As far as the therapeutic use of proguanil is concerned our results are in conformity with those of other workers in many parts of the world, and discussion of them is unnecessary. But with regard to the prophylactic use of proguanil, our results apparently disagree with the experimental evidence produced by workers on this subject. It is therefore useful to consider the possible explanations.

The most obvious explanation is that the 74 people, whom we regarded as having satisfactory prophylactic histories, had not, in fact, been taking proguanil regularly. According to Fairley, 100 mg. of proguanil taken 39 to 131 hours after being bitten will afford complete protection. This means that one must omit to take proguanil for four successive days before the erythrocytic cycle can be established. But once this cycle has been established it may well remain suppressed for many weeks by the schizonticidal action of the daily 100 mg. of proguanil although this dose is inadequate to produce radical cure. This explanation fits well the 46 cases in which the prophylactic history was satisfactory and overt malaria appeared to be precipitated by other diseases. It fits less well the 28 cases with satisfactory prophylactic histories in which overt malaria developed in the absence of any precipitating factor. It also serves to explain Rushton's findings. Against this explanation it may be said that 78 people is a large number to brand either as deliberate deceivers or as having such poor memories that they were unable to recall the omission to take proguanil for four successive days.

If this first explanation is not excepted, one may postulate that in Mackinnon Road there is a mixture of strains of *Plasmodium falciparum* and that these 78 cases were infected by a strain in which the pre-erythrocytic stage was resistant to proguanil. Against this explanation, it should be pointed out that in only 3 cases were we unsuccessful when using proguanil in thera-

peutic doses. Had a resistant strain been present, one would have expected to find a steady increase in the number of cases developing malaria and a similar increase in the number unsuccessfully treated with therapeutic doses of proguanil. This was not so.

A third explanation remains. The experimental evidence is based on experiments involving a relatively small number of people. Our data are based on a population of 1,200 which is probably greater than the total number of people involved in all the experiments added together. It is, therefore, reasonable to suggest that our results reveal a natural variation in individuals to proguanil and to postulate that in the 78 cases with satisfactory prophylactic histories there was some inborn variation either in the absorption or the metabolism of proguanil which prevented the drug exerting its effect upon the pre-erythrocytic forms of *Plasmodium falciparum*. Against this explanation, it can be argued that people with such an inborn variation should tend to have repeated attacks. And this in fact they did not do.

Our results are equivocal: they can be explained in at least three different ways and arguments can be adduced both for and against each explanation. Our object in publishing these results is to bring the problem to the notice of as many medical officers as possible, because we believe that the solution of the problem may well lie in the hands of an enthusiastic Regimental Medical Officer.

To solve the problem the following data are required:

(a) Evidence that at the start of a period of observation the personnel involved are free from infection with malarial parasites. The most satisfactory method of providing this evidence is to give the personnel involved a therapeutic course of either mepacrine or chloroquine during the first week of any experimental period.

(b) Evidence that the personnel involved are actually ingesting their proguanil. This can only be satisfactorily obtained if the investigator personally supervises the taking of the proguanil.

(c) Evidence that the personnel involved are absorbing proguanil. This can be obtained from analysis of either blood samples or urine samples.

(d) In the event of any of the personnel developing overt malaria, evidence that the strain of *Plasmodium* is or is not susceptible to proguanil. This can only be obtained by isolating the strain and then inoculating it into non-immunes.

These data can be gathered in two ways: One may take, as Rushton did, a large group of men and observe them over a given period. Or one may take every man, in a given unit, who develops malaria and observe them over a given period after their blood stream has been sterilized by a therapeutic antimalarial course. Whichever method is adopted, the ideal person to carry out the investigation is the Regimental Medical Officer. The laboratory investigations required could easily be performed for him by the nearest

pathologist. It is in the hope that some suitably placed Regimental Medical Officer may be inspired to carry out such an investigation that we have submitted our results for publication.

SUMMARY

(1) 122 cases of malignant tertian malaria occurred at Mackinnon Road during the year September 1949 to August 1950 in a population of 1,200 supposedly taking prophylactic proguanil.

(2) In 74 cases the prophylactic history was satisfactory; in 27 cases it was unsatisfactory; and in 21 cases it was unknown.

(3) In 59 cases precipitating factors were present; in 63 cases no precipitating factors were present.

(4) In 28 cases, the prophylactic history was satisfactory and no precipitating factors were present.

(5) 200 healthy soldiers took prophylactic proguanil under supervision for 60 days. On the 30th day, malarial parasites were present in the blood stream of 5 of these soldiers.

(6) Three possible explanations of these results are advanced and the arguments for and against each explanation are discussed.

(7) An outline plan is suggested for a further attack upon this problem.

I am greatly indebted to Captain D. G. Rushton, R.A.M.C., for his generous permission to make full use of the results of his investigation.

I am also greatly indebted to Lieutenant-Colonel J. L. Gordon, O.B.E., R.A.M.C., A.D.A.H., Headquarters, East Africa Command, for his stimulating suggestions and criticisms and for his kindness in subjecting the results to statistical analysis.

I have been privileged to discuss these results with Sir Neil Hamilton Fairley, K.B.E., M.D., D.Sc., F.R.C.P., F.R.S., and Dr. D. G. Davey, O.B.E., and I wish to thank them for their clarification of many of the points involved.

REFERENCES

- [1] CURD, F. H. S., DAVEY, D. G., and ROSE, F. L. (1945) *Annals of Tropical Medicine and Parasitology*, p. 139 (pt. I), p. 157 (pt. II).
- [2] MAEGRAITH, B. G., ADAMS, A. R. D., KING, TOWNSEND, DAVEY, and HAVARD (1945) *Annals of Tropical Medicine and Parasitology*, 39.
- [3] FAIRLEY, N. H. (1946) *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 40, No. 2, p. 105.
- [4] EDESON, J. F. B., and FIELD, J. W. (1950) *British Medical Journal*, 1, 3, 147.
- [5] COVELL, G., NICOL, W. D., SHUTE, P. G., and MARYON, M. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 42, Nos. 4 and 5.
- [6] BRUCE-CHWATT, L. J., and BRUCE-CHWATT, J. M. (1950) *British Medical Journal*, 2, 7.
- [7] DROLLER, H. Unpublished.
- [8] RUSHTON, D. G. Personal communication.

At Random

BLOOD TRANSFUSION

NOWADAYS *Transfusion*, whether it be of blood or blood substitutes, is looked upon by the ordinary layman as a matter of course, a treatment to which he or more particularly she is immediately entitled without any real provocation or in fact whether there is any real need for it or no; much as "X-ray" has come to be regarded by the layman or laywoman in the previous two decades as an invariable accompaniment to any diagnosis, however trivial the condition might be.

But behind that universal demand in educated communities for *transfusion* as an immediate remedy for the current complaint lie not only a long and interesting record of much painstaking endeavour, of many mistakes and of multiple triumphant achievement, but also cheek by jowl with its progress a complicated and efficient service of supply which has been built up by means of a wide-flung network which gathers in from willing individuals the half-yearly or quarterly pint donations.

Some of the history of this record of development is given below.

SOME HISTORY OF BLOOD TRANSFUSION¹

The earliest references to the therapeutic use of blood are to drinking it or bathing in it, and the first mention of the possibility of transfusion was made by Andreas Libavius, an Italian, in 1615. His method—though there is no evidence that he ever tried it—was based upon transfer of blood by silver tubes from donor's artery to recipient's artery.

With Harvey's discovery of the circulation of the blood, transfusion became a practical possibility. A Florentine physician, Francesco Folli, devised a method using human donors and an intravenous cannula. This he published in 1654, without, however, having tried the experiment. He believed that "if such an invention were successful, monarchs alone were worthy of it": a sentiment possibly re-echoed nearly three hundred years later by the Viscount Montgomery's "Every man an emperor."

Very little later, animal experiments on transfusion were begun, under the auspices, in this country, of the Royal Society, and their *Philosophical Trans-*

¹[EDITOR'S NOTE.—These notes have been kindly supplied by J. B. Neal and he, in turn, adds that they are almost entirely a précis of Section I and part of Section VIII of "Blood Transfusion," G. Keynes. Wright: Bristol and London, 1949.]

actions for December 17, 1666, contain an account of a successful dog-to-dog transfusion. These experiments led to the trial of animal blood for human subjects, a practice which appears to have continued intermittently until 1874.

The first essay of this kind is attributed to Professor Jean Denys, of Montpellier, who claimed clinical benefit for a man whom he transfused with lamb's blood on June 15, 1667. The inevitable fatalities after animal-to-man transfusion—that there were not more is to be attributed to the small quantities transfused—led to the method falling into disrepute; and, although Erasmus Darwin published, in 1794, an ingenious device of silver cannulæ connected by a length of chicken-gut to permit measurement of the blood transfused, prevent air-embolism and allow of the blood being maintained at body temperature, the method does not seem to have been tried.

For the next advance, we have to wait for James Blundell (1790–1877) to demonstrate, by sheep-to-dog transfusion, the incompatibility of blood of different species, and to perform, on December 18, 1818, the first successful transfusion between two human subjects (*Lancet*, 1, 431 (1829)). From this time on, progress, though not rapid, was steady. Methods were multiplied, using syringes, tubing and funnels, and complicated apparatus for drawing arterial, venous or capillary blood.

Clotting was early recognized as an untoward event which led to difficulty and complications, and Braxton Hicks, in 1869, tried sodium phosphate as an anticoagulant, but with fatal results. But experiment continued with defibrinated blood and other means, and in 1891 Almroth Wright used oxalate.

Reactions following transfusion were long attributed to air embolism, until the discovery by Landsteiner, in 1901, of agglutinins in blood, and of the four basic groups by Jansky in 1907.

Transfusions in war dates from the Franco-Prussian War of 1870–71, but real advance in this field began to be made in the War of 1914–18. There is an excellent account of direct artery to vein transfusion in the *Lancet* (1, 715 (1917)) by Col. A. Fullerton, Major G. Dreyer, R.A.M.C., and Capt. H. C. Bazett, R.A.M.C., using silver cannulæ connected by waxed tubing. Citrate as an anticoagulant was adopted in the British Army in 1917.

The use of stored blood for transfusion dates, too, from World War I, Captain O. H. Robertson, of the U.S. Medical Officer Reserve Corps, publishing a paper in the *B.M.J.* (1, 691 (1918)), on the use of dextrose-citrated group 4 blood stored in an ice-chest for up to four weeks. (This is an admirable article.) The method was forgotten until the Spanish Civil War of 1937–39, when interest in blood-storage revived. Experiments upon the use of placental and cadaver blood were also made at this time.

MODERN PROGRESS

Since the 1914–18 War much research work was carried on at an increasing tempo in many countries to try to discover whether it would be possible to find an ideal substitute for blood.

We are a long way from this ideal as yet, but certainly much progress has

been made since the time when we used gum acacia in World War I. The modern derivations *Dextran* and *Plasmosan* represent present-day advances.

Research work is being carried out in the U.K. and in the United States into certain derivatives of gelatine, but this work is still in the experimental stage.

PLASMA SUBSTITUTES¹

Today there is a quickening of interest in plasma substitutes for two reasons. The value of blood volume restoration in many conditions is now widely appreciated, and in countries, where a transfusion service cannot be organized, plasma substitutes are obviously valuable; in a national emergency plasma substitutes would certainly be needed to supplement blood and plasma.

Many different substances of animal, vegetable or synthetic origin have been used as plasma substitutes since the 1914-18 War, and most of them have been discarded for one reason or another. At the present time interest here and in the United States is focused upon dextran, polyvinylpyrrolidone and gelatin. Each of these must be assessed against the accepted criteria of the ideal plasma substitute which are reproduced in Thrower and Arden's paper in this number of the Journal. It is unlikely that any substitute will meet all the requirements absolutely, and one will therefore have to accept those which come nearest to the ideal; but it must be remembered that no substitute, however near the ideal, is likely to be as good as the natural substance. Plasma substitutes should therefore always be used with discretion and as supplements to whole blood or plasma, unless neither of the natural substances is available.

Experience of plasma substitutes in this country so far has been mainly confined to dextran which has now been used successfully on a fairly big scale in civilian hospitals and to a smaller extent in the Army and R.A.F. and has borne out the restrained optimism originally expressed when the results of the preliminary trials were published. Evidence is gradually accumulating that the blood volume restoring effects of dextran, as prepared at present in the United Kingdom, are closely similar to those of plasma, for example, in cases of burns [1].

The use of polyvinylpyrrolidone in this country has more recently been reported [2, 3] and Thrower and Arden summarize in this number of the Journal the properties and results of a preliminary clinical trial of this material. There has not yet been time to accumulate detailed experimental and clinical observations which will permit an accurate comparison of the properties of polyvinylpyrrolidone and dextran.

REFERENCES

- [1] BULL, J. P., Proceedings of IVth International Blood Transfusion Congress 1951. In press.
- [2] THROWER, W. R., and CAMPBELL, H. (1951) *Lancet*, **1**, 1096.
- [3] ARDEN, G. P. *et al.* (1951) *Lancet*, **1**, 1099.

¹Contributed by an eminent officer.

STAGING POST

TODAY our Journal reaches the final "*Staging Post*" of its full lived life of nearly fifty years and enters the last lap to its "*Journey's End*."

Elsewhere in this number will be found a more prosaic and managerial note upon this subject. Our monthly numbers will continue for a while but from a different Printing House and by a temporary arrangement until such time as a Phoenix shall arise in a new and, it is hoped, a wider and more comprehensive form.

The pity of it is that we should have to cease at all and more particularly that our Journal cannot continue even for the full fifty years.

For nearly 50 years this Journal has flourished and given to the Medical Services of many nations not only a picture of the work and progress of our own Medical Services, but given to them and to the World a lead in progressive Military Medicine and Army Health.

It is not lack of material which has forced this upon us and on the Managing Committee. There is material in plenty now coming in or has come in within the past few months (though at the moment there appears to be something of a hiatus), and the quality of contributions seems to continue at the usual high and desirable level.

It is lack of money, lack of sufficient annual subscriptions, lack of the full support of every member of our Medical Services which has caused the Managing Committee to make this decision. The cost of production has been doubled and trebled in recent years and our subscribers have steadily dwindled so that support is now given very largely only by loyal retired members and serving regulars.

Our Scots Commentator in "Correspondence" in this number has aptly expressed the hope that a Phoenix will arise from our ashes. We hope so too. We hope that we are, in fact, only at a "Staging Post" where we change to a different form of vehicle and where we take on a different team and not indeed entering on the last lap to "Journey's End."

Travel and History

THE DIRECTORS OF MEDICAL SERVICES IN INDIA

BY

Major J. B. NEAL, T.D.

Royal Army Medical Corps

DURING the period of Crown rule in India, there hung in the office of the Director of Medical Services in India a series of portraits of those who had held the appointment, and each as he came added his own. This, then, is something of the story of the thirty-one officers who, under varying titles,

had the chief responsibility for British Military Medicine in India from 1857 to 1947, "that these men which were the personal and painful travellers might reap that good opinion and just commendation which they had deserved."¹ Considerations of cost alone prohibit reproduction here of all the photographs.

Medical officers had served the Honourable East India Company since 1660, and had, since 1764, been organized into a definite service—or rather, three services, for the presidencies of Bengal (Fort William), Madras (Fort St. George) and Bombay were autonomous under the Court of Directors, and each maintained its own Army. Surgeons of the British Army had done duty in India, under the jurisdiction of the Company, since 1754.² Surgeons were then Regimental Officers, and a surgeon's primary responsibility was to his Colonel, but his hospital and practice were subject to inspection by administrative medical officers of the Company's Army of the presidency in which the unit was stationed. For example, *The Code of Regulations for the Medical Department of the Presidency of Bombay* (1838) lays down that "Superintendent Surgeons [analogous to an Assistant Director of Medical Services of a District] are confined to the superintendence and control of the financial and economical arrangements of the hospitals: the control over them, so far as regards the practice of the medical staff, is vested in the Deputy Inspector of Hospitals [corresponding to a Deputy Director of Medical Services of a Command]: and Superintending Surgeons, in their visits, are not to interfere in it, unless the treatment pursued by the medical officer in charge, be so obviously at variance with their own experience, of the diseases of the country, as imperatively to call upon them to do so." Later in the period of the Company's rule, further supervision, by inspectorial staff of the British Service, was added.

After the suppression of the Sepoy Mutiny, the rule of the Crown replaced that of the Company, the Royal Assent being given to "An Act for the Better Government of India" on August 2, 1858, and Her Majesty's assumption of sovereignty proclaimed in all the major cities of the land on November 1 of the same year. An unofficial primacy attached to the presidency of Bengal, in view of the establishment in Calcutta of the Government of India, and supreme control of British Military Medicine therefore devolved upon the senior Inspectors-General³ of the Bengal Medical Service and the Army Medical Staff, DR. JOHN FORSYTH and DR. WILLIAM LINTON.

Forsyth was the senior, having been appointed Assistant Surgeon in the Bengal Medical Service in 1820, after the customary two years as Hospital

¹ Rudyard Kipling, in his address "The Verdict of Equals." *A Book of Words*: London, Macmillan, 1928.

² Units of the British Army were referred to, in contradistinction to the Company's troops, as "Royal troops," "King's (or Queen's) troops," or, latterly, "Imperial troops." This last term was in use before the proclamation of Her Majesty Queen Victoria as Empress of India on January 1, 1877.

³ Inspector-General was not an appointment but a rank, equivalent either to Brigadier-General or Major-General according to seniority and circumstances.

Mate in the East India Company's sea service. He had seen active service in Afghanistan (1839-42) as senior surgeon with Shah Shuja's forces at Ghuznee, with General Sale's brigade at Jellalabad, at the reoccupation of Cabul under General Pollock, and in numerous minor engagements, as well as being Director-General in Bengal during the Mutiny (1857-9). He retired in 1862, after forty-four years' service, including four and a half as Director-General, but he had to wait nearly twenty years more before receiving the honour of knighthood (*K.C.S.I.* in the Queen's Birthday List of 1881).



SIR JOHN FORSYTH

Linton, whose photograph in the series is a copy of his portrait in oils in the Millbank Mess, had held local rank as Inspector-General since January 1856, before becoming substantive in October 1858. His position as doyen of the British Medical Service in India was confirmed in 1861 by his designation as Principal Medical Officer¹ of Her Majesty's Forces in India.

As the senior British Medical Officer in Bengal during the Mutiny, he had worked hand-in-hand with Forsyth, and they were the only officers to be mentioned by name in General Lord Clyde's despatch of February 21, 1859, commending the work of the medical and commissariat departments. Clyde's tribute, that "the staff and regimental medical officers have well maintained

¹ This Journal, Vol. 19, contains at p. 370 (Col. A. Peterkin) and p. 493 (Lieut.-Col. C. Birt) some notes on the not very creditable origins of the title "Principal Medical Officer." See also the *Fifth Report, Commission of Military Inquiry*, 1808, p. 18.

the credit of their noble profession, and the reputation for self-sacrifice which belongs to the Surgeons of Her Majesty's Armies—a reputation which is maintained in the field on all occasions, as well as in the most trying circumstances of the hospital," is supported by the award to officers of the (British) Army Medical Department of five Victoria Crosses and six appointments to the Companionship of the Bath. Before going to India, Inspector-General Linton had served in the Crimea, gaining every clasp which was available to an Army officer, and he had been appointed Honorary Physician to the Queen in the original list of 1859. He left India on retirement in 1863, being promoted *K.C.B.* in 1865.

British and Indian Medical Services were still entirely distinct (the presidency services were not united for many years yet), and the series of photographs, after Sir John Forsyth, includes only British P.M.O.s until the third decade of the twentieth century. Linton was succeeded by Surgeon-General GEORGE STEWART BEATSON, the only one of the line to do two tours in the appointment, from 1863 to 1868, and from 1872 until his death at Simla in 1874.

While the number of British troops in India was small, the dual administration, though clumsy, was not burdensome. With the recent increase in strength, the difficulties were magnified. The heads of the three presidential Medical Services were Principal Inspectors-General, and since some degree of pre-eminence attached to appointments in Bengal, the Government of which was largely co-terminous with the Government of India, it was proposed that the P.M.O. of H.M. Forces there should have the same title as his Presidency colleagues. There was also a strong feeling in some quarters that he should be removed from the staff of the Commander-in-Chief in India, and be made responsible to the Civil Government. These factors became part of a plan for a revised system of medical administration, and he, Beatson, strongly represented his view that to discharge his duties efficiently, his relations with the Commander-in-Chief must be preserved, and his jurisdiction over the Service in all three presidencies conceded. In the end, after eighteen months of discussion between London and Calcutta, it was decided that British and Indian Medical Services must continue to be administered separately, with the exception that, for a field force on active service, there should be one P.M.O., who might be drawn from either Service but who would be possessed of full authority over officers of both; that no primacy could be allowed to Bengal; and that the title of Principal Inspector-General was inadmissible.

These rulings were implemented on October 26, 1866, by the issue of *Government of India General Order No. 901*. This provided for one British Inspector-General for each presidency,¹ which was subdivided into "circles of medical superintendence," usually, but not invariably, corresponding with

¹ A second Inspector-General, for the North-West Provinces, was later sanctioned in Bengal. He was responsible to the Government directly, and not through the I.G. in Calcutta.

military districts and divisional areas. The more important circles were administered by Deputy Inspectors-General; the less, by Superintending Surgeons-Major. (An exactly parallel arrangement obtained in the Indian Service.) Officers to fill these appointments were nominated by the Army Medical Department in February 1867: the list included the names of Deputy Inspectors-General J. H. K. Innes (Lucknow) and S. Currie (Poona), both later to be P.M.O.s, India.

A year later, Currie was selected for duty as P.M.O. of the field force for the Abyssinian expedition of 1868. The Commander-in-Chief in India vainly protested that he had not been consulted about the appointment; the autonomy of the Presidency was paramount. The lesson of this episode was not learned. An army in time of peace must have as its primary function the representation of the nation's readiness for war: the two facts, that the systems for peace and war were diametrically opposed, and that active service appointments could be made without reference to the Commander-in-Chief, betokened, not efficiency and preparedness, but a political unwillingness to subordinate expediency to reality.

On the same day that Currie's appointment was confirmed by the Horse Guards, the Duke of Cambridge, commanding-in-chief at home, wrote to the C.-in-C. in India agreeing that there was a need for a P.M.O. for all India, and suggesting that there was "nothing in orders inconsistent with departmental subordination of the minor Presidencies to the Inspector-General in Bengal." and that it was quite competent for His Excellency to call for any medical information he might require from Madras and Bombay through Dr. Beatson. The Duke was, however, at once overruled, and the Indian Government was informed that medical administration must be carried on through C.s-in-C. of Presidency Armies, and not through Beatson, as I.-G. in Bengal, to provincial I.s-G., "as so doing may lead to misunderstanding and embarrassment, as placing an officer of Government in one Presidency in a position of departmental superiority to an officer holding a similar position under Government of another Presidency."

There could be no higher testimony to Beatson's loyalty, ability and tact in working under so cumbrous a system, beset with pitfalls, and of which many of the principles were contrary to his own judgment and expressed views, than his selection for a second tour in the appointment.

In 1868, Beatson was relieved by Surgeon-General (later Director-General Sir) WILLIAM MURE MUIR, who, as D.G., A.M.D., was to be responsible for the abolition of the regimental system and for the unification of the British Army Medical Services, and to be described by Sir Garnet Wolseley, by no means a medically minded General, as "one of the very ablest men in our Army." Muir had an excellent background of active service, and of the treacherous paths which lie between diplomacy and war. He had served in the Crimea as surgeon of the 33rd Foot; as P.M.O. in the China expedition of 1860, for his services in which he was mentioned in despatches, promoted

Inspector-General, and appointed *C.B.*; as P.M.O. of the force sent to Canada in 1861 in consequence of the "Trent" incident;¹ and as a liaison officer with the Union Army during the United States Civil War. Surgeon-General Muir has left accounts of his experiences which are models of military writing. The best are probably the *Medical History of the War in the North of China*, in the Report of the Army Medical Department for 1860, *Sherman's March* (A.M.D. Report for 1864), and *On Regimental Arrangements in India* (A.M.D. Report for 1869), an informed and well-reasoned criticism of the system of unit reliefs then prevailing in that country.

There is nothing of Muir's—with its simple English and lucid style: concise, incisive and vivid; the points stressed by humorous remark rather than by repetition and typographical tricks—that could not be placed in the hands of any medical officer today. Forty years after the time of which we write. Muir was still held in grateful remembrance. Sir Alfred Keogh, speaking at the Corps dinner on June 14, 1909, said, "See to it, Gentlemen, that these young officers are brought up on the principles of McGrigor and Muir." Today, he is inadequately commemorated by the bronze plaque over the doors of the R.A.M. College Library.

Early in 1872, Muir went home to be head of the Sanitary Branch of the Army Medical Department in the War Office, handing back his charge in India to Surgeon-General Beatson, on whose death Surgeon-General SAMUEL CURRIE became P.M.O. of H.M. Forces in India. Currie, whom we have noted as P.M.O. of the Abyssinian expedition, had seen other fighting—in Gwalior (1843), with the Army of the Sutlej (First Sikh War, 1846), and as Field Inspector, under Muir, in China (1860). At the reorganization of 1866, he had been appointed D.I.-G. of the Poona circle, leaving from there for Abyssinia. He has left a clear account of the latter campaign in the A.M.D. Report for 1867, and noted the difficulty of evacuation of casualties in mountain warfare. Currie's tenure of office was short, and in 1875 he was succeeded by Surgeon-General JOHN HARRY KER INNES.

Innes was a vigorous and outspoken man. As an executive officer, he had served, in sixteen years, with six regiments, horse and foot, English, Scottish and Rifles. He had done duty in the Crimea: he had been wounded at Delhi during the Mutiny and was mentioned in despatches for gallantry there: and, as a regimental surgeon, had been appointed *C.B.* in 1858. He had served as a British Medical Commissioner with the German forces in the Franco-Prussian War, and received the Iron Cross and the Steel War Medal. During his tour as P.M.O., India, came the Afghan War of 1878-80, his medical arrangements for which excited wide admiration, and of which

¹ On November 8, 1861, the United States ship "San Jacinto," Captain Charles Wilkes, stopped the British Royal Mail steamer "Trent" on the high seas, and, in defiance of international law, took off by force the Confederate Commissioners-designate to Britain and France. A force was sent to Canada in case diplomatic action had to be reinforced by military, but President Lincoln turned over the commissioners and their secretaries to Britain, and war was averted.

Surgeon-General G. J. H. Evatt, *C.B.*, has given a very readable account (this Journal, 5, 276, 412 and 533).

In 1877, further plans were canvassed for reorganization of the Medical Services in India. The official plan provided for separation of the civil element of the Indian Medical Service from the military, which was to be combined with the British Service. The civil Surgeons-General were to be Indian, the military, British Service, in each presidency. All responsibility for medical statistics was to be transferred from the Medical to the Sanitary Branch, then wholly distinct and separately accountable to Government; this division of responsibility was to obtain both with central and with local governments. As the keynote of the scheme, there was to be a Surgeon-General with the Government of India, as head of the Indian Medical Service, but with advisory functions only, having no executive authority over the British Surgeons-General, and equally none over members of the Indian Service doing duty under provincial governments.

Innes roundly condemned the plan: "the subject has been only superficially dealt with; an attempt has been made to perpetuate under a new system the proven errors of the old: and that although certain plans are put forward to meet supposed present requirements, no scheme of military medical organization has been put forward which possesses any stamp of cohesion or permanency, or even which gives promise of present satisfactory operation." He declared that medicine and sanitation were indissoluble, one great Health Department rendering any separate sanitary department superfluous. After this outburst, Innes became constructive and outlined a plan of his own, to which he largely succeeded in converting the Commander-in-Chief. However, Government adhered to its own scheme, despite the Surgeon-General's criticism, the C-in-C.'s support of him, and Sir Garnet Wolseley's condemnation of the dual system as an expensive anomaly which had "always been injurious to good administration in peace, whilst during war it proved so destructive to efficiency that it had to be abandoned when an army took the field."

The proposals were then considered by the home Government. Sir William Muir, now Director-General, while not advocating Innes' scheme in its entirety, by no means supported the Government's plan, but despite the bait offered by Sir William, of undertaking supervision of all Indian hospitals by the existing British administrative staff, "without any extra expense in men or money," the Government of India's plan was approved, and published as a General Order on January 2, 1880, to become effective on April 1. All three Surgeons-General on the military side were to be British Service, though the Government of India "reserved the power of appointing specially qualified officers of either Service to any of these positions."

Feelings in the Indian Medical Service ran very high at this apparent slight upon its efficiency. An "Indian Medical Service Defence Committee" was formed, composed mainly of retired officers of the Service and members of Parliament, and Dr. J. F. Beatson, Surgeon-General of the Indian Medical

Department, addressed Government in an immodest and intemperate letter, claiming a presidential Surgeoncy-General for himself. His claims may indeed have been well founded, but the animus with which he expressed them could excite no sympathy.

In view of Surgeon-General Innes' vehement opposition to the plan, Government's reluctance to retain him as its chief medical adviser for the inauguration of it is understandable. Surgeon-General THOMAS CRAWFORD, from the Bombay Presidency, was selected to succeed him, which he did at the end of February 1880. Innes went home to retirement, speeded by a farewell order, unusually laudatory even for the time and place: "The Governor-General in Council will feel it a duty to bring to the marked notice of Her Majesty's Government the sense His Excellency in Council entertains of the obligations under which Surgeon-General Ker Innes has placed the Government during his tenure of his present responsible position, and especially the military operations [in Afghanistan] in which his arrangements have been so able and successful."

Crawford was an innovator, but one with the gift of introducing and accomplishing his reforms with the least degree of opposition and ill-feeling. He had an excellent Indian record; of active service in Burma (1852-53), as surgeon of the 18th Foot (The Royal Irish Regiment) during the Mutiny, and as an administrator in Afghanistan. His account of this last campaign was printed in the A.M.D. Report for 1880. He was unusual in his time in receiving his honours—a Good Service Reward in 1880, K.C.B. in 1885, and appointment as Honorary Surgeon to the Queen—while still a serving soldier.



SIR THOMAS CRAWFORD

Crawford's principal achievement in Indian was the introduction, in 1881, of station, instead of regimental, hospitals for British troops. This reform had been advocated by Muir as long before as 1861, and introduced, in a modified form for active service only, by Innes. It was the natural sequel to the abolition, in 1873, of the regimental system as such. It is a tribute to Crawford's personality that the change was accepted with more of subsequent nostalgia than of anticipatory opposition.

To provide subordinate staff for these hospitals, the Army Native Hospital Corps was formed under authority of Indian Army Circulars for January 1881. (The title seems never to have been officially altered to "Army Hospital Corps," but the word "Native" is lost between 1888 and 1891.) It was composed of compounders, dressers, barbers, ward-coolies, cooks, shop-coolies, bhisties and sweepers, collectively designated "hospital attendants," and initially recruited mainly from men who had been similarly employed in the regimental hospitals. Dhoolie-bearers and purveyors' staff were not included.

Crawford remained in India only until 1882, when he was called home to become Director-General in succession to Muir. His work there, in consolidating the Army Medical Staff and the Army Hospital Corps (Royal Warrant of September 20, 1884) into the Medical Staff Corps has been over-shadowed by the greater transformation of fourteen years later into the R.A.M.C., but there can be no doubt of the strength of the body of opinion against which Crawford made his point.

Crawford was succeeded in India by Surgeon-General Sir ANTHONY DICKSON HOME, V.C., another officer with a distinguished record in fighting and administration. He had served in the Crimea and in the Mutiny, both he and his assistant-surgeon, W. Bradshaw, whose Cross is in the Millbank Mess, winning Victoria Crosses at Lucknow while serving with the 90th Foot (the Scottish Rifles). This had been followed by the China expedition of 1860, the New Zealand Campaign of 1863-5, in which he gained a C.B., and special promotion to Staff Surgeon-Major, and the Ashanti War of 1873-4, in which he served as P.M.O., being promoted K.C.B. in 1874. After this he spent four years as head of the Statistical Branch of the Army Medical Department, and four as P.M.O. in Cyprus. Sir Anthony's tour in India was uneventful except for the inception, just before he left, of the campaign in Burma against King Theebaw.

The principal medical responsibility for this war fell upon Surgeon-General CHARLES DODGSON MADDEN, who took over from Home at the end of 1885. Madden had joined the service during the Crimean War as one of the despised band of Acting Assistant Surgeons, recruited to fill the deficiency of regular officers. He had seen service also in the Mutiny and in Abyssinia, where he earned accelerated promotion to Surgeon-Major.

The most notable event of Madden's term of office was the inauguration, in 1888, of the Indian Nursing Service (later, successively, the Indian Army Nursing Service and Queen Alexandra's Nursing Service for India, which

amalgamated with Q.A.I.M.N.S. in 1926). Eight sisters, with two Lady Superintendents, sailed from England in February 1888, landed at Bombay on March 21, and took up duty in two detachments, one at Rawalpindi, the other at Bangalore. The new service was blooded almost at once, for, in September 1888, a detachment under the senior Lady Superintendent, Miss C. G. Loch, was ordered to Abbottabad, the base hospital for the Black Mountain expedition, later moving with the Hazara Field Force to Darband. For this service, the sisters were awarded the medal and clasp, Miss Loch and two others receiving the Royal Red Cross also. The employment of sisters led to a remarkable improvement in the standard of work in Indian hospitals, as the only attendance available until then, other than that of the Army Hospital Corps, had been provided by nursing orderlies, so-called, drawn from whatever units happened at the time to be in the station. Not until the 1914-18 War did other ranks, R.A.M.C., serve in India.

In 1889, Madden was relieved by Surgeon-General WILLIAM ARTHUR THOMSON, another former Acting Assistant Surgeon, described by Miss Loch as "a good friend in some ways, and a dear and kind old man." Although eight clasps were added to the (second) India General Service Medal during his tour as P.M.O., India, from 1889 to 1891, the period is unremarkable.

Thomson's successor, Surgeon Major-General ALEXANDER FREDERICK BRADSHAW, came to his position from being P.M.O. in Peshawar after much Indian service, beginning with the Mutiny and including the Afghan War (1879-81) and the Zhob Valley (1884) and Hazara (1891) expeditions. His term, 1892-5, included the period of preparation for the union of the separate Presidency armies (though not yet of their medical branches) into one Indian Army, the reorganization becoming effective on April 1, 1895, just before Bradshaw's retirement. India was now divided, for military purposes, into four commands, the Punjab, Bengal, Madras and Bombay, each having a P.M.O. Of the four, two were to be British and two Indian service, an I.M.S. officer being always appointed either to Bengal or to the Punjab. The commands were subdivided, for medical administration, into "Districts (no longer 'Circles') of Medical Superintendence," each in charge of a Surgeon-Colonel, and these appointments were equally divided between the Army Medical Staff and the Indian Medical Service: Poona, for example, being always British and Bombay always Indian. Peshawar, a junior appointment, to be held by a Brigade-Surgeon-Lieutenant-Colonel, alternated between British and Indian holders.

The reader will have noticed that new titles of rank have appeared in the last paragraph. These were introduced in August 1891 by two Royal Warrants, for the Medical Staff Corps and the I.M.S., as a concession to the feeling that a grudging system of relative rank ill-accorded with the achievements and duties of military medical officers. The hollow nature of the new names, from Surgeons-Major-General down to Surgeons-Major (Surgeons, anomalously, became Surgeon-Captains), is apparent at mere reading. The

rank element, though dignified by capital initial letters, remained adjectival to the substantive "Surgeon." These ranks were in use, except for the Household Cavalry and Foot Guards, only until the issue of the R.A.M.C. Warrant in June 1898 (until August 1898 in the I.M.S.). It is doubtful whether any man could have survived more than seven years of being addressed as "Brigade-Surgeon Lieutenant-Colonel."

Surgeon-Major-General Bradshaw was a vigorous, sympathetic and respected officer who added to the honours he might reasonably have expected—*C.B.*, *Q.H.S.*, *K.C.B.*—an unusual one: on the occasion of the opening of Queen Alexandra's Military Hospital, Millbank, he was appointed a Consulting Physician in the distinguished company of Dr. (later Sir) William Osler and others.

Surgeon-General ALBERT AUGUSTUS GORE took over from Bradshaw early in 1895 and remained in office until 1898. He is more closely associated with West Africa than with India, his *Medical History of our West African Campaigns*, published in 1876, being an accessible and connected account of the largely self-contained West African service. His second book, *The Story of Our Services under the Crown: a Historical Sketch of the Army Medical Staff* (1879) is a greater monument to his enthusiasm than to his industry, though it remains a useful guide in spite of its prodigious number of mistakes in dates and names.

The reorganization in India which has already been noted became effective immediately after Gore's assumption of office, and was completed exactly one year later by the merging of the Medical Services of the three presidencies into the Indian Medical Service on April 1, 1896. A Director-General, I.M.S., was appointed, with supreme control over the new service.

It will be recalled that Sir John Forsyth, with whom this story opened, was Director-General of the Medical Department of the Bengal Presidency, the title having been introduced when the Medical Boards were abolished in November 1857. In 1862, the title had been changed to "Principal Inspector-General"; in 1871, to "Surgeon-General," and again in 1880, to "Surgeon-General and Sanitary Commissioner with the Government of India." The description, Director-General, which has been in use in the Army Medical Department since 1810, was not again altered in the I.M.S. after this reintroduction in 1896.

Reorganization was also afoot at home, for the R.A.M.C. Warrant was signed on June 23, 1898, and Gore was thus the first P.M.O. to administer officers of the new Corps in India. The warrant, among other provisions, granted the simple titles of rank which are now in use, except that a Surgeon-Major-General became Surgeon-General. (Military titles were accorded to general officers in 1917.)

Surgeon-General WILLIAM TAYLOR relieved General Gore at the beginning of 1899, and remained in India until his selection as D.G., A.M.S., in 1901. He had seen plenty of fighting—the Fenian Rising in Canada (1865–9). Jowaki

(1877), Burma (1885-6), Hazara (1888), Burma (1888-9), the Sino-Japanese War (1894-5), Ashanti (1895-6), where he gained special promotion to Surgeon-Major-General, and the Nile (1898). His reports on the two latter campaigns are to be found in the A.M.D. Reports for 1895 and 1898. As, in addition, he had been for four years Surgeon to the C-in-C. in India, his far-sightedness, administrative ability and determination were founded upon a firm rock of experience.



SIR WILLIAM TAYLOR

As P.M.O. in India, he introduced Specialist Sanitary Officers, one to each command, and arranged for officers to be posted to hospitals for specialized professional duties. The complement to the Army Hospital Corps, the Army Bearer Corps, was raised in 1901, and recruited initially from dhoolie bearers taken over from the Transport Department. All these reforms appear to have been easily established. Those which he later accomplished as Director-General—his plan for the R.A.M. College and the doctrine of training associated with it—were less readily carried through. It would not be amiss to mention here that this Journal principally owes its inception to Sir William Taylor.

His successor, Sir THOMAS JOSEPH GALLWEY, provides an interlude (1902-6) between the medical advances just described and the military changes to come during the tenure of office of Surgeon-General WILLIAM LAUNCELOTTE GUBBINS.

Gubbins came to India with active service experience in the Afghan War

and in South Africa, and having held senior administrative appointments at home and in India. His first reform was the introduction of courses, of one month's duration, in the sanitary methods in use in Indian cantonments. These were held at Rawalpindi, Poona, Lucknow and Bangalore, and attendance was compulsory for all young officers of both R.A.M.C. and I.M.S. A welcome, if unforeseen, aspect of these courses was the number of combatant officers who attended them voluntarily. It would be an exaggeration to attribute to this measure all the credit for the improvement in the health of the soldier in India, but the figures are spectacular; for the ten-year period 1895-1904, the death-rate for British troops was 17 per thousand per year; in 1907, it was 9·8, while by 1910, it had again fallen to 4·6 per thousand.

This period, too, saw a notable change in the organization of the Army in India. The four commands were abolished, ten divisional districts¹ being substituted for them. The four Command Sanitary Officers were replaced by ten Divisional Sanitary Officers, all the appointments being reserved for officers of the R.A.M.C. At the same time, nine Divisional Mobilization Store Officers were appointed in place of the four Staff Officers, Army Bearer Corps; four officers were found from the R.A.M.C. and five from the I.M.S.

These changes, following upon those initiated by Sir William Taylor, notably raised the standard of hygiene supervision and training, but it must not be thought that their scope was confined to simple sanitation: the officers' designation of status was *Specialist in the Prevention of Disease*.

Gubbins went home in June 1908 to be Deputy Director-General to Sir Alfred Keogh, handing over to Surgeon-General W. B. Slaughter, as officiating P.M.O., pending the arrival of Surgeon-General FRANCIS WOLLASTON TREVOR. The latter came to the appointment well equipped, with active service in Afghanistan, the Soudan (1884-5) and South Africa, and administrative experience as P.M.O., Western Command, and, after the alteration to a divisional basis, 6th (Poona) Division. His main contribution to military medicine was securing, early in 1910, confirmation from the Government of India of the practice of sending invalids to hill stations, instead of to England, for the winter months. This had been provisionally instituted under Gubbins in 1907, and found to work well.

Trevor's successor, Sir ARTHUR THOMAS SLOGGETT, was the first to bear the title of Director of Medical Services. He had been present with the Dongola force in 1896, earning special promotion to Surgeon-Lieutenant-Colonel, and in 1897-8 with the Nile expedition, the R.A.M.C.s baptism of fire, when he received his wound through the heart at the battle of Khartoum and advancement to the higher rate of pay as a reward for his services. An observation in his report of the latter campaign is characteristic of one aspect of the man: "The medical comforts were of good quality: before I started, I insisted that

¹ Divisions were based upon: 1st, Peshawar; 2nd, Rawalpindi; 3rd, Lahore; 4th, Quetta; 5th, Mhow; 6th, Poona; 7th, Meerut; 8th, Lucknow; 9th, Secunderabad; and the Burma Division.

the best brand of champagne procurable in Cairo should be taken (Perrier and Jouet's)." In South Africa, he had commanded the Imperial Yeomanry Hospital, and, later, another general hospital, leaving the colony in August 1902, after eighteen months as commander, Deelfontein District and deputy administrator of Cape Colony. In India, he had been P.M.O., 6th (Poona Division, before relieving Sir Francis Trevor on December 31, 1911.

In 1912, General Sloggett's appointment was redesignated "Director of Medical Services, Army Headquarters, India," similar changes being made all down the scale: the P.M.O. of a division, if a surgeon-general, became a D.D.M.S., or, if below that rank, an A.D.M.S.; the Divisional Sanitary Officer became D.A.Ds.M.S. (Sanitation), and the Divisional Medical Store Officer a D.A.D.M.S. (Mobilization). Alterations were made in headquarters appointments also, deputy P.M.O.s becoming D.D.s, and secretaries to P.M.O.s, A.D.s.M.S. Of wider significance to India as a whole was the transfer of the capital from Calcutta to Delhi in December 1912.

Sloggett left India in March 1914 to relieve Sir Launcelotte Gubbins as D.G., A.M.S., but his tenure in the War Office was short, as he went to France in October 1914 as D.G., M.S., British Expeditionary Force, Sir Alfred Keogh being called from retirement to fill his place at home in a temporary capacity. (This was the second occasion on which a temporary appointment had been made, Surgeon-General A. F. Preston having officiated for a short time pending the assumption of duty by Sir William Taylor in 1901.)

Two short appointments then follow. Sloggett handed over to Sir WILLIAM BABBIE, who, after winning the Victoria Cross at Colenso, had spent thirteen years in the War Office, as A.D.G., Inspector of Medical Services, and D.D.G., before taking up duty in India in March 1914. He remained long enough to see India, with the rest of the Empire, plunged into the First World War. An Indian contingent landed in France in September 1914: it consisted of two cavalry and two infantry divisions, with their medical units, and was accompanied by three clearing hospitals, two stationary hospitals, three B.G.H.s. and two I.G.H.s. Another Indian force went to Egypt in November 1914: a third, in May 1915, to Gallipoli; and a fourth to East Africa. The main burden of the campaign in Mesopotamia was borne by India, and the Aden Field Force was an Indian commitment.

The organization of medical arrangements for all these: the alterations and improvisations required to convert units from a purely Indian basis to meet the demands of such diverse theatres; and, not least, the evacuation of casualties from them: all these provided problems of the first magnitude which had not all been solved when, in June 1915, General Babbie was appointed Principal D.M.S., Mediterranean Theatre, and handed over his Indian charge to Surgeon-General JAMES GAUSSEN MACNEESE.

Macneese had a more extensive Indian background than Babbie. He had served in Afghanistan (1878-80), with the Bozdar Field Force (1881), and in the Zhob Valley (1884): he had been P.M.O. of the 8th (Lucknow), and subse-

quently of the 6th (Poona) Divisions. In addition, he had seen a year's service in the South African War and had been the senior British medical officer at the Messina earthquake in 1908.¹ Incidentally, he was an early protagonist of dental surgery in the Army.

Apart from occasional frontier incidents, war did not come to India between 1914 and 1918. The administration of Indian medical units, once they had left India, did not fall, except as regards reinforcements, upon the D.M.S., and to attempt to follow them would go beyond the scope of this article, and would comprise a lengthy chapter in the history of the Indian Medical Service.

General Macneese was replaced in September 1916 by Surgeon-General (later Lieutenant-General) Sir THOMAS JOSEPH O'DONNELL, and he, in turn, from 1919 to 1923, by Lieut.-General Sir CHARLES BURTCHAELL. It will be convenient to consider these two periods together, in order to continue to survey the further proposals which were made for reorganization of the Medical Services in India. These have not been mentioned since Bradshaw's time, though they had been raised, in forms varying with the relative popularity, from a recruitment point of view, of the R.A.M.C. and I.M.S., only to be dropped again.



SIR CHARLES BURTCHAELL

¹ The Mess Library at Millbank contains a booklet giving a full list of the names of the "Corpo dei medici militari di terra della Gran Bretagna" under his charge, which collectively earned the silver medal and diploma which are framed in the entrance hall of the Mess.

The period 1918–23, however, saw the work of several committees and a great deal of discussion upon their recommendations. Negotiations which had been opened before the war led to the formulation by the India Office, in 1918, of certain principles which were to govern future policy on the I.M.S., however such policy should ultimately be expressed. These were, that the service should provide a satisfying standard of professional work, that remuneration should be adequate, that increasing opportunities should be available for Indians to enter the Service, and that everything possible should be done to eliminate discontent, though misgivings were entertained about the prospects of completely eliminating friction between R.A.M.C. and I.M.S. No exception could be taken to these counsels, or to principles of union of the British and Indian military Medical Services. Dissension arose upon the manner of effecting the change. (It may be noted at this point that Indian practice had been brought more closely into line with British, by the abolition, in 1918, of the regimental system, and, in 1920, by the formation of the Indian Hospital Corps by amalgamating the Army Hospital Corps with the Army Bearer Corps.)

The first committee was set up in 1918, and produced its findings with commendable promptitude. Unfortunately, neither the findings nor the recommendations based upon them were acceptable either to the British or to the Indian side, both of which put forward counter-proposals. The R.A.M.C. aspect of these treaties will always be associated with the name of Sir Charles Burtchaell. It was universally agreed that union could only be achieved by forming a new corps for the purpose: General Burtchaell's plan called for the formation of a R.A.M.C. (India) for all military duties in both British and Indian armies, leaving the rump of the I.M.S. as a purely civil service: General Edwards, D.G., I.M.S., envisaged his service as capable of doing all the official medical duties, military and civil, dispensing with the R.A.M.C. in India altogether.

Before any agreement could be reached, Lord Esher's Committee reported in favour of co-operation rather than amalgamation. Such of its recommendations as could be adopted on a "gentleman's agreement" basis—preliminary training of I.M.S. officers at Millbank and alternation of the appointment of D.M.S. in India between British and Indian Services—were at once put into effect. The others were quietly forgotten, for the committee felt at heart that while there were two separate armies to be served, no united medical service for them was really practicable, and in 1925 this view was officially adopted. Indeed, it is apparent now that not since 1861 had a real opportunity presented itself for whole-hearted amalgamation. Each Service had its advantages, based upon its traditions and conditions of service, and one that, under every change of fortune, had always rested with the British was that up to the time of the publication of the Esher report, it had always found the D.M.S., India. There had never been any reason why an I.M.S. officer should not have been selected, but none had been until September 1923, when Major-General CHARLES HARFORD BOWLE-EVANS¹ succeeded Sir Charles Burtchaell.

¹ I regret that I have been unable to trace any portrait of General Bowle-Evans.

General Bowle-Evans had entered the Bengal Service in 1894, seen active service in Waziristan the same year, and thereafter experienced more fighting than falls to the lot of most men. He was promoted Major-General on September 6, 1923, on assuming duty as D.M.S., and it is regrettable that he was compelled by ill-health to resign in December of that year.

His successor, Major-General OLIVER LONG ROBINSON, was of course, British service (December 19, 1923, to January 2, 1927), and his, in turn, an I.M.S. officer, Major-General WALTER HOLLAND OGILVIE (January 3, 1927, to September 1, 1929). British and Indian officers then alternated through the



SIR WALTER OGILVIE

next ten years of committees, frontier incidents (including the suppression of the rebellion in Burma in 1930-2), and other matters of routine: Major-General WILLIAM HENRY SNYDER NICKERSON, V.C., British, 1929-33; Major-General Sir ERNEST ALEXANDER WALKER, Indian, 1933-7; Major-General GEORGE GRANT TABUTEAU, British, 1937-40.

Major problems were few during this period. Burma was separated from India in 1928, while, in 1929, the divisional reorganization of the forces in India was replaced by a system of territorial commands. In 1929, too, a Nursing Section Reserve was authorized for the Indian Hospital Corps, and the Quartermaster Section was renamed the Stores Section. (An Ambulance Section Reserve had been established in 1925.)

Under General Tabuteau, we pass from peace to war, and this time, unlike

1914–18, war which touched India very nearly. Before the Japanese onslaught in December 1941 Indian troops were engaged in the Middle East, with all its appanages—Abyssinia, Iraq, Persia—and with the development of the war in the Far East, India became further and further committed. Indian troops had taken part in the defence of Hong Kong and of Singapore, and they were soon engaged in the defence of Burma. This settled down to a steady withdrawal culminating in a stand at the eastern gateway of India itself. Defence was then punctuated by attack, though on a small scale: the first Arakan campaign of late 1942 and early 1943, the second after the 1943 monsoon, and the two Wingate expeditions of 1943 and 1944. By April 1944 Indian territory had been penetrated by the enemy: the significance of Imphal and Kohima need no stressing. Thereafter began the liberation of Burma and the end of the Eastern War.

What, then, were the problems confronting those who bore the chief medical responsibility in India in these days? They were problems of despatching and receiving, of training and organization, of an increasing and unprecedented degree of weight and complexity. As early as 1941, before India itself was closely threatened, the *Annual Report of the Health of the Army in India* shows a decline in the well-being of the forces: the rate of admissions to hospitals increased, so did the constantly-sick rate, and the death-rate leaped by over 30 per cent to 4.19 per thousand—an interesting comparison with the figures already quoted for 1895–1910, of which Surgeon-General Trevor could be so justly proud. The increases were explained, reasonably enough, by the influx of inexperienced medical officers, by the inexperience of the troops themselves (somewhat unkindly referred to as “civilian soldiers”), the alteration in the composition of the Army, the withdrawal of the fit men for active service outside India, leaving a higher proportion of relatively unfit, the retention of many who would normally have been invalided, and the return to India of invalids from fighting areas. Some of these factors must be expanded if the picture is to be seen in perspective.

Over 1,000 field medical units were mobilized for service outside India. Evacuation of casualties into the country, especially from Burma, was a matter of the greatest difficulty, and it is to the lasting credit of the senior medical administrative officers that, while they preached the gospel of air-evacuation long before it became acceptable or feasible, they organized prodigious feats of improvisation by ship, train and other means. Something of the detail of this work, and of what it involved at all levels, may be read in this Journal.¹

The existing hospitals in India were woefully inadequate for the reception of the flood of sick and wounded. The deficiency was supplied by the building of vast hospital-cities at Bangalore, Bombay, Secunderabad, etc., by the estab-

¹(a) *Burma Retreat*: compiled from letters by Brigadier (now Lieut.-General Sir) T. O. Thompson, D.D.M.S., Burma, to Brigadier H. C. D. Rankin, D.D.M.S., G.H.Q., India, 90, 23 and 47 (Jan. and Feb. 1948).

(b) *The Burma Campaign, 1942–1945. A History of Casualty Evacuation.* Lt.-Col. R. Wigglesworth, 91, 101 (Sept. 1948).

lishment of a cushion of Advanced Base Hospitals, by the adoption of a clear, simple policy for holding and evacuation at the various levels, and by an extraordinary resilience of staff-work.

It is now a commonplace that it was health-discipline which beat the Japanese. But health-discipline had to be taught, and the need for it inculcated, to all ranks from commanders down to private soldiers, the latter British, Indian and African, while no teaching can be effective which is not based upon conviction of its value in both teacher and pupil. The evidence upon which to secure this conviction was everywhere at hand in the overflowing hospitals: the presentation of it called for strong expansion of effort, which was duly produced.

On the administrative side, mention must be made of the formation, in 1943, of the Indian Army Medical Corps, from the Indian Hospital Corps, officered at first by secondment of the I.M.S. officers who were at the time in military employment, such officers as were subsequently commissioned being appointed direct to the Corps. The Nursing services were expanded by raising the Auxiliary Nursing Service (India) in 1941, in which, by the end of the war, over 3,000 women had served. This side of the story would not be complete without a reminder of the political background, from the early reluctance in some quarters to have India committed to participation in the war, through the negotiations of the Cripps Mission, to the grant of dominion status to India and Pakistan in 1947.

Who were the men who directed these activities? In March 1940 General Tabuteau died in harness, and was succeeded by Major-General WILLIAM HAYWOOD HAMILTON, I.M.S., an officer with high professional qualifications and a distinguished active service record. He was succeeded, in 1941, by another Indian service officer, Major-General ARCHIBALD CAMPBELL MUNRO. General Munro was relieved, on June 1, 1943, by Lieut.-General GORDON WILSON, British service, who took over at a time when our fortunes in the East were probably at their lowest ebb, and remained in office until after victory had been won. Remembering, therefore, the heavy burden which lay upon his shoulders during these years, it is no derogation of his predecessors to record my impression, gained from those who served under General Wilson, that they were led by a man of no ordinary calibre. Considering what a high proportion of their service R.A.M.C. officers spent in India, appointments to the peculiarly Indian orders of the Star of India and the Indian Empire were always comparatively few, and General Wilson's *K.C.S.I.* in 1946 was a well-merited award.

His successor, Major-General TREFFRY OWEN THOMPSON, who assumed office on March 23, 1946, was well qualified to steer the medical services through the phase of decline to the ultimate withdrawal of British troops in 1947. With nearly continuous Indian Service between the wars, his entire war-service of 1939-45 had been spent in the Indian sphere—as Deputy Director of Hygiene and Pathology at G.H.Q., India, as D.D.M.S., first in Iraq, then successively in Burma (1942), Central Command, and Eastern Army. He then became Medical Adviser to the Supreme Allied Commander, South-East Asia, D.M.S., 11 Army



SIR TREFFRY THOMPSON

Group and then of Allied Land Forces, South-East Asia, and D.M.S., S.A.C.S.E.A. This rich experience stood him and the medical services in good stead during the final year, and it was a becoming end that, after serving India officially for so long, he should have offered her two more years (1947-49) as British Red Cross Commissioner for relief work in India and Pakistan.

The medical history of the last war is not yet written; it must include accounts of, and tributes to, the work of these officers and those who assisted them, including the Ds.G., I.M.S., whose story runs parallel with this. It may be permissible to mention here the present D.G., A.M.S., Sir Neil Cantlie, who succeeded General Thompson as D.D.M.S., Eastern Army, and General H. C. D. Rankin, who, as D.D.M.S., Southern Army, which included the enormous hospital bases already mentioned, had charge of that which, as D.D.M.S. at Army Headquarters, he had so ably helped to create. Those who held these high offices are still with us, and it may be that to the honour which their work has earned may be added gratitude for the record of it.

Queen Victoria's proclamation of November 1, 1858, concluded: "And may the God of all power grant unto us, and to those in authority under us, strength to carry out these our wishes for the good of our people." Will any man say that any of these failed in his stewardship.

I am indebted to Lieut.-General Sir Treffry Thompson, *K.C.S.I., C.B., C.B.E., D.M.*, and to Major-General F. R. H. Mollan, *C.B., O.B.E., M.C., K.H.S.*, for the opportunity to write this article, and to General Mollan for permission to

publish it. I am most grateful to Colonel A. M. Pugh for his help in preparing the manuscript.

APPENDIX

List of the officers referred to in this paper, showing highest rank attained, decorations, etc. (The symbol † indicates that the officer afterwards became D.G., A.M.S. (or D.G., A.M.D.); * shows an Indian service officer. There is no photograph available of those whose names are printed in *italics*.)

DIRECTOR-GENERAL AND PRINCIPAL INSPECTOR-GENERAL OF HOSPITALS.

- * Director-General Sir John Forsyth, *K.C.S.I.*, *C.B.*, *Q.H.P.*, 1857–62.

PRINCIPAL MEDICAL OFFICER, H.M. FORCES IN INDIA.

- Inspector-General Sir William Linton, *K.C.B.*, *M.D.*, *Q.H.P.*, 1861–3.
- Surgeon-General G. S. Beatson, *C.B.*, *M.D.*, *Q.H.P.*, 1863–8 and 1872–4 (died in office).
- † Director-General Sir William Mure Muir, *K.C.B.*, *M.D.*, *Q.H.P.*, 1868–72.
- Surgeon-General S. Currie, *C.B.*, *M.D.*, *Q.H.P.*, 1874–5.
- Surgeon-General Sir John H. K. Innes, K.C.B., F.R.C.S., Q.H.S., 1875–80.*
- † Director-General Sir Thomas Crawford, *K.C.B.*, *M.D.*, *LL.D.*, *M.Ch.*, *F.R.C.P.I.(Hon.)*, *F.R.C.S.I.(Hon.)*, *Q.H.S.*, 1880–2.
- Surgeon-General Sir Anthony D. Home, *V.C.*, *K.C.B.*, *M.D.*, *Q.H.S.*, 1882–5.
- Surgeon-General C. D. Madden, *C.B.*, *Q.H.S.*, 1885–9.
- Surgeon-General W. A. Thomson, *M.B.*, *Q.H.P.*, 1889–92.
- Surgeon-General Sir Alexander F. Bradshaw, *K.C.B.*, *M.A.*, *Q.H.P.*, 1892–5.
- Surgeon-General A. A. Gore, *C.B.*, *M.D.*, *F.R.C.S.I.*, 1895–8.
- † Surgeon-General Sir William Taylor, *K.C.B.*, *M.D.*, *C.M.*, *LL.D.(Hon.)*, *K.H.P.*, 1899–1901.
- Surgeon-General Sir Thomas J. Gallwey, *K.C.M.G.*, *C.B.*, *M.D.*, *Col. Comdt.*, *R.A.M.C.*, 1902–6.
- † Surgeon-General Sir W. Launcelotte Gubbins, *K.C.B.*, *M.V.O.*, *M.B.*, *K.H.S.*, 1906–8.
- Surgeon-General Sir Francis W. Trevor, *K.C.S.I.*, *C.B.*, *M.B.*, *K.H.S.*, *Col. Comdt.*, *R.A.M.C.*, 1908–11.
- † Lieut.-General Sir Arthur T. Sloggett, *K.C.B.*, *K.C.M.G.*, *K.C.V.O.*, *F.R.C.S.*, *K.H.S.*, *Col. Comdt.*, *R.A.M.C.*, 1911–4. (Designation changed from P.M.O. to D.M.S., March 1912.)

DIRECTOR OF MEDICAL SERVICES.

- Major-General Sir William Babbie, *V.C.*, *K.C.B.*, *K.C.M.G.*, *M.B.*, *K.H.S.*, 1914–5.
- Major-General J. G. Macneese, *C.B.*, 1915–6.
- Lieut.-General Sir Thomas J. O'Donnell, *K.C.I.E.*, *C.B.*, *D.S.O.*, 1916–9.
- Lieut.-General Sir Charles H. Burtchaell, *K.C.B.*, *C.M.G.*, *LL.D.*, *M.B.*, *F.R.C.P.*, *F.R.C.S.I.*, *K.H.S.*, *Col. Comdt.*, *R.A.M.C.*, 1919–23.
- * Major-General C. H. Bowle-Evans, *C.M.G.*, *C.B.E.*, *M.B.*, *K.H.P.*, Sept.–Dec. 1923.
- Major-General O. L. Robinson, *C.B.*, *C.M.G.*, *M.R.C.P.*, *K.H.P.*, *Col. Comdt.*, *R.A.M.C.*, 1923–7.
- * Major-General Sir Walter H. Ogilvie, *K.B.E.*, *C.B.*, *C.M.G.*, *M.B.*, *C.M.*, *D.Sc.*, *K.H.P.*, 1927–9.
- Major-General W. H. S. Nickerson, V.C., C.B., C.M.G., M.B., K.H.S., Col. Comdt., R.A.M.C., 1929–33.*
- * Major-General Sir Ernest A. Walker, *K.C.I.E.*, *C.B.*, *M.B.*, *F.R.C.S.E.*, *K.H.S.*, 1933–7.
- Major-General G. G. Tabuteau, *D.S.O.*, *K.H.S.*, 1937–40 (died in office).
- * Lieut.-General W. H. Hamilton, *C.B.*, *C.I.E.*, *C.B.E.*, *D.S.O.*, *F.R.C.S.*, *K.H.P.*, 1940–1.
- * Major-General A. C. Munro, *C.B.*, *M.B.*, *K.H.P.*, 1941–3.
- Lieut.-General Sir Gordon Wilson, *K.C.S.I.*, *C.B.*, *C.B.E.*, *M.C.*, *M.B.*, *K.H.S.*, 1943–6.
- Lieut.-General Sir Treffry O. Thompson, *K.C.S.I.*, *C.B.*, *C.B.E.*, *M.A.*, *D.M.*, *K.H.P.*, *Col. Comdt.*, *R.A.M.C.*, 1946–7.

Correspondence

ROYAL ARMY MEDICAL COLLEGE,
MILLBANK,
LONDON, S.W.1.

SIR,

I should be grateful if you would allow me to correct some errors in my article, "The Honorary Physicians and Surgeons to the Sovereign," which appeared in the Journal for September 1951.

The distinction of being the first officer to be promoted brevet-colonel on appointment as Honorary Physician or Surgeon belongs, not to Lt.-Col. R. S. F. Henderson, R.A.M.C., but to Brigade-Surgeon Lt.-Col. C. E. Harrison, Grenadier Guards (K.H.S., March 13, 1907). It may be noted that had such promotion been authorized before 1879, the only officer to whom it would have applied was also a surgeon of Foot Guards, Surgeon-Major J. A. Bostock, Scots Fusilier Guards.

In the nominal rolls, the date of Major-General J. J. Gerrard's appointment as K.H.P. should be 24.11.19, not 27.1.18; Major-General H. C. R. *Hine* should be HIME: and the list of K.H.P.s should include the name of Col. (temp. Brig.) H. A. Sandiford, M.C., M.B. (23.1.46), above Major-General J. C. A. Dowse. Brig. R. A. Broderick should be included, above Major-General H. J. Higgins, in the Honorary Dental Surgeons, Regular Army, and not in a separate list.

Finally, it should be mentioned that only one officer, the present D.G. A.M.S., has ever been successively both Honorary Physician and Honorary Surgeon.

I am, Sir,

Yours faithfully,

J. B. NEAL.
Major, R.A.M.C.

DERMATOLOGICAL DEPARTMENT,
THE QUEEN ALEXANDER MILITARY HOSPITAL,
MILLBANK, LONDON, S.W.1.
October 15, 1951.

SIR,

To ensure that an article is published correctly most journals take the obvious precaution of forwarding proofs to the author for his approval and for amendment if necessary.

In the recent past, three articles which I have submitted have been accepted and published incorrectly. In the first two there were errors which were rela-

tively unimportant; but in the Journal of September 1951 on page 161, you printed incorrectly a passage in such a manner that a reflection is cast on a treatment devised by Dr. T. T. Patterson of Cambridge. The sentences should read:

"Other treatments tried included one devised by Dr. T. T. Patterson of Cambridge which consisted essentially of Brilliant Green paint and a dusting powder consisting of equal parts of talc and iodoform. This was an effective form of treatment which showed no advantage over the former but had the disadvantage that iodoform powder did cause occasional reactions.

"Undecylenate powders tended to cause interdigital maceration: they were better if used in conjunction with a Brilliant Green or Gentian violet paint. Subjectively most patients preferred the simple dusting powder."

I should be glad if you would give this letter prominence in your next issue.

Yours faithfully,

K. GREENWOOD.

[EDITOR'S NOTE.--Sincere apologies are offered both to Major Greenwood for this mutilation of his article which should have been spotted and corrected in the proof-reading stage and to Dr. T. T. Patterson for any apparent aspersions cast on his treatment either by patients or by the author of this Journal.

As a matter of interest it should be mentioned that galley proofs are in fact in most cases sent out to authors and often are only returned weeks after the galleys have been returned to the Printers, in some cases weeks after the issue of the completed relative monthly number has been made.]

ST. ANDREW'S HOUSE,
EDINBURGH. 1.

October 17, 1951.

DEAR SIR,

Sir Andrew Davidson has passed me your note about your wish to publish in the Journal of the R.A.M.C. the current notes that appeared about that Journal in the last issue of the *Health Bulletin*.

As Editor of the *Health Bulletin* and also as the writer of the notes in question, I have very great pleasure in giving you full permission to reprint the relevant portions on the understanding, of course, that references to the *Health Bulletin* will be made.

I have for long enough admired the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS and have felt that it made a continued and sustained contribution to preventive medicine and to the promotion of health. I am very sorry indeed that financial reasons are making it impossible to continue in its present form but, as I mentioned in the note, I am one of the many who will look forward with great interest to the phoenix that will arise from its ashes.

Yours sincerely,

I. A. G. MACQUEEN.

PARSONAGE HOUSE,
HAMPSTEAD NORRIS,
BUCKS.

September 30, 1951.

DEAR SIR,

I consider the entry in the Corps Journal that gives the estate value of deceased officers most objectionable and distasteful.

Various other retired officers are in full agreement with me on this and I suggest that no such further entries are printed.

Yours faithfully,

H. G. PEAKE

(Colonel Rtd.)

[EDITOR'S NOTE.—A canvass of opinions in the Mess and elsewhere agrees with Colonel Peake's protest and request which will therefore guide future policy on this point.]

DO/DAH/51.

October 10, 1951.

DEAR EDITOR,

You will be interested to see the reference to the R.A.M.C. Journal in *Health Bulletin* (issued by the Chief Medical Officer of the Department of Health for Scotland) Current Notes pp. 54 and 55 sidelined, and the approval recorded to your Editorial criticizing the arguments for the opponents of vaccination.

I like the *Health Bulletin*. Andrew Davidson and his staff form a very live team.

Yours sincerely,

T. YOUNG.

EXTRACT FROM HEALTH BULLETIN

Vol. ix, No. 4, October 1951

One of the few medical journals consistently concerned with the promotion of health and the prevention of disease, rather than simply with the treatment or palliation of established disease, has been the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, which has maintained a high standard of contribution and has done much to advance the cause of social health in the 48 years of its existence. We note with profound regret that the Journal is shortly to terminate a career that began in 1903, but we await with considerable interest the emergence of what we hope will be a phoenix from the ashes.

A recent issue of the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS (Vol. 96, No 5, May 1951) contains a vigorous criticism of the specious arguments of those opponents of vaccination who try to "bolster up the case for withholding the protective safety of vaccination, quite forgetful of or completely ignoring the fact that we in this island still fortunately enjoy, in spite of many efforts to the contrary, a very considerable measure of general protection against

smallpox due to the existence over the past forty or fifty years of a reasonably well-vaccinated state in the community." The same number of that Journal contains an interesting article by Colonel R. H. Robinson on "Future Medical Officers for the Army," in which the proposal is made that the Army should run an undergraduate medical school of its own—partly because there is a scarcity of doctors at present and "it appears that the existing schools cannot turn out enough doctors to satisfy the more attractive civilian services," partly because such a school could pay special attention to military medicine, and partly because it would pay much greater attention to preventive medicine, to maintenance of health, and to reduction of injury and disease than in existing schools where therapeutics seems to take precedence.

Matters of Interest

ON the occasion of His Majesty's recent operation the following message was sent to our Colonel-in-Chief and the subsequent reply received:

TO: PRIVATE SECRETARY TO HER MAJESTY THE QUEEN.

FROM: D.G.A.M.S., WAR OFFICE.

Director-General and All Ranks Royal Army Medical Corps send their humble duty to their Colonel-in-Chief and earnestly pray that His Majesty The King may soon be restored to full health and strength.

(Above telegram despatched 10 a.m., September 24, 1951.)

WAROF A81 7.30 BUCKINGHAM PALACE 28

THE DIRECTOR GENERAL ROYAL ARMY MEDICAL CORPS
WAR OFFICE =

I SEND MY SINCERE THANKS TO ALL WHO JOINED IN
YOUR KIND MESSAGE WHICH I DEEPLY APPRECIATE
ELIZABETH +

PROGRAMME OF LECTURES AND COURSES R.A.M. COLLEGE, MILLBANK JANUARY 1952

- | | | |
|--------|----|---|
| Tues. | 1 | 51st Senior Officers' Course commences clinical instruction. |
| Thurs. | 10 | College Evening Lecture (5 p.m.) "The proper sphere of Social Medicine" (Dr. Andrew Topping). |
| Mon. | 21 | Lieutenants on First Appointment—Course commences. |
| Wed. | 23 | Demonstration for London School of H. & T.M. R.A.M. College (2-4 p.m.). |
| Thurs. | 31 | College Evening Lecture (5 p.m.) "Modern trends in the treatment of Carcinoma of the Breast" (Sir Cecil P. G. Wakeley, P.R.C.S.). |

FEBRUARY 1952

- Mon. 11 Lieutenants on First Appointment—Course commences.
 Thurs. 21 College Evening Lecture (5 p.m.) "The Neurology of the Cervical Spine" (Dr. Walter Russell Brain, P.R.C.P.).

MARCH 1952

- Mon. 3 Lieutenants on First Appointment—Course commences.
 Thurs. 6 R.S.M. (United Services Section) Meeting.
 Fri. 7 51st Senior Officers' Course completes clinical instruction.
 Mon. 10 }
 Tues. 11 } 51st Senior Officers' Course clinical examinations.
 Wed. 12 }
 Thurs. 13 College Evening Lecture (5 p.m.) "Common difficulties in the diagnosis of heart disease" (Dr. D. Evan Bedford).
 Fri. 14 Meeting. Society of Medical Officers of Health (Services Section) R.A.M. College. 7.30 p.m.
 Thurs. 20 Royal S.T.M. & Hy. Lab. Meeting—R.A.M. College (7.30 p.m.).
 Mon. 24 } 51st Senior Officers' Course commences. Specialist training.
 } Lieutenants on First Appointment—Course commences.
 Mon. 31 } 1860—Foundation Army Medical School, Fort Pitt.
 } 52nd Senior Officers' Course assembles.

APRIL 1952

- Tues. 1 52nd Senior Officers' Course commences.
 Thurs. 3 College Evening Lecture (5 p.m.) "The treatment of Hypertension" (Dr. M. L. Rosenheim).
 Fri. 11 Good Friday.
 Mon. 14 Easter Monday.
 Tues. 15 Lieutenants on First Appointment—Course commences.
 Thurs. 24 College Evening Lecture (5 p.m.) "Arthroplasty" (Mr. St. John Dudley Buxton).

MAY 1952

- Mon. 5 Lieutenants on First Appointment—Course commences.
 Tues. 13 College Evening Lecture (5 p.m.) "The Diagnosis of early Pulmonary Tuberculosis" (Dr. J. G. Scadding).
 Thurs. 15 1907—Opening of R.A.M. College.
 Mon. 26 Lieutenants on First Appointment—Course commences.

JUNE 1952

- Mon. 2 Whit Monday.
 Thurs. 5 R.S.M. (United Services Section) Meeting.
 Mon. 9 52nd Senior Officers' Course Examinations commence.
 Wed. 11 Demonstration for London School of H. & T.M. R.A.M. College (2-4 p.m.).
 Tues. 17 52nd Senior Officers' Course commences clinical instruction.
 Thurs. 19 Corps Sports (Aldershot).
 Fri. 20 Corps "At Home" and Dinner.
 Mon. 23 Corps Day.
 Tues. 24 Lieutenants on First Appointment—Course commences.

JULY 1952

- Mon. 7 Lieutenants on First Appointment—Course commences.
 Mon. 28 Lieutenants on First Appointment—Course commences.

AUGUST 1952

Mon.	4	Bank Holiday.
Mon.	18	Lieutenants on First Appointment—Course commences.
Fri.	22	52nd Senior Officers' Course completes clinical instruction.
Mon.	25	} 52nd Senior Officers' Course clinical examinations.
Tues.	26	
Wed	27	

SEPTEMBER 1952

Mon.	8	52nd Senior Officers' Course commences Specialist training.
Tues.	9	Lieutenants on First Appointment—Course commences.
Mon.	29	Lieutenants on First Appointment—Course commences.
Tues.	30	50th Senior Officers' Course completes Specialist training.

ADDENDUM

Courses of ten weeks' duration for Junior Officers (Short Service Commissions) have been introduced. The curriculum for these courses is identical with that for the first half of the Senior Officers' Courses and assembly dates, etc., coincide with the latter.

THE following notice has been received from the Editor, *The Army Medical Services Magazine*:

TO ALL SUBSCRIBERS TO THE
"JOURNAL OF THE ROYAL ARMY MEDICAL CORPS"

You will be already aware that, owing to the present economic position, it has been regretfully decided that the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS must cease publication.

This will mean after October 1951 that you will no longer receive quarterly the *Army Medical Services Magazine* which has up to the present been included in the Journal subscription.

We feel sure that you will wish to keep in touch with the activities of the Army Medical Services through the medium of this inexpensive publication and that you will agree that, as the only periodical dealing with all our Medical Services, the Magazine is deserving of the fullest support.

Order forms for subscription by Bankers Order or Annual Subscription may be obtained from the Editor or Manager, and it is very much hoped that you will send *one* of these to Messrs. Gale & Polden in time to receive the January Number.

EDITOR,

Army Medical Services Magazine.

BLACKHAM MEMORIAL LECTURE

THE annual London nursing exhibition and professional nurses and midwives conference was held at Seymour Hall, W., between October 15 and 19, 1951.

The Lord Mayor of London, Sir Denys Lowson, accompanied by the Lady Mayoress, opened the exhibition and remained to hear the first Blackham Memorial Lecture, given in memory of Major-General R. J. Blackham, founder and organizer of the conference. The lecture, "Unforeseen Dilemmas of the Midwife," was given by Sir William Gilliatt.

26TH ANNUAL CONGRESS OF ANÆSTHETISTS

THIS Congress held in London from September 3-7, and sponsored by the International Anæsthetic Research Society and the International College of Anæsthetists was attended by a large number of anæsthetists from many parts of the world.

A very full programme of scientific and social events had been arranged and was very fully attended. Reports of the proceedings of the scientific sessions, which were held at B.M.A. House, have already appeared in the Medical Press and elsewhere.

A paper entitled "Anæsthesia in War" was read by Doctor R. W. Cope, a member of the London Committee for the Congress and Consultant Anæsthetist at University College Hospital, London. Doctor Cope served with distinction in the R.A.M.C. during the late war in the rank of Major and his paper is published in full in this number of the Journal.

In connexion with the Scientific Section of the Commercial Medical Exhibition organized in association with the Congress, two R.A.M.C. Officers were among the exhibitors. Major V. J. Keating showed four ingenious pieces of apparatus of his own design:

- (1) An electric pulse indicator.
- (2) An electronic cardiometer.
- (3) A Vinesthene vaporizer.
- (4) An aseptic transfusion pump.

Lieut.-Colonel K. F. Stephens exhibited the "Anæsthetist's Safety Tray" first described in the July number of this Journal.

THE COUNCIL OF COLONELS COMMANDANT

AT a meeting held at the Headquarters Mess on October 4, 1951, the following items were discussed and arranged:

(1) *Increase of Rent of Victoria Street Office.*—The Council were much concerned over the increased rental demanded for a further three years' occupation.

There was little prospect of obtaining alternative civilian accommodation at a lower rental. Even should this be possible we should be called upon to pay an additional "premium." Three years ago we paid £350 premium on our present offices. The implication of this was that though the rent had been raised we should have to pay out actually less money during the next three years than we had to during 1949-51.

The Council recommended therefore that another three years' contract should be entered into. The Secretary, R.A.M.C. Fund, was asked to explore the possibility of inserting a clause to enable us to vacate the premises with due notice, at a period of under three years should suitable W.D. accommodation became available, he was also asked to bring the matter before forthcoming committee meetings of the various groups of Charities and Organizations concerned. Scales of contributions to defray the increased rent was approved.

(2) *The Sandhurst Memorial.*—The Hon. Secretary reported that on Septem-

ber 17, at the request of the Representative Colonel Commandant, he had visited the Sandhurst chapel and had had a conference with the Chaplain, the Secretary to the Chapel Council, Lieutenant-Colonel G. A. Shepperd and the Senior Medical Officer, Lieutenant-Colonel H. R. Millar.

It was agreed that to have an R.A.M.C. pew separate from all those of other regiments and corps at a more or less remote part of the chapel would be very unsuitable.

An alternative proposal was that we should provide a Litany Desk which was badly needed and which would bear the Corps Crest. The Council agreed to this and wished to thank the Chapel Authorities for their welcome suggestion.

(3) *Memorial Tablet to Sir Almroth Wright*.—This formed the subject of a War Office Branch Memorandum which had been referred to the Council for consideration. The Officer Commanding, Royal Victoria Hospital, submitted a proposal that the ten years' work done at Netley by Sir Almroth when Professor of Pathology should be commemorated by the placing of a plaque outside the room where he worked, now a barrack store, or, preferably, in the Main Buildings with a short inscription outside the room itself.

The Director of Pathology made an alternative suggestion that a plaque should be erected in the Pathology Département of the R.A.M. College, Millbank.

The proposal met with warm approval. As its primary object was to commemorate work done at Netley, it was thought the plaque should be at Netley rather than at Millbank.

The Director-General proposed that the inscription might be made shorter on the following general lines:

"ALMROTH EDWARD WRIGHT

Professor of Pathology in the Army Medical School made the first trials of Anti-Typhoid Inoculation on himself and the Surgeons on Probation in the Laboratory of this Hospital during the years 1895 to 1898"

(4) *New Corps History*.—The Secretary reported that sales outside the Depot had exceeded all expectations. The Cloth Edition was exhausted some seven weeks after publication. 932 cloth and 977 paper copies had been sent to all parts of the world and there were outstanding orders for 504 cloth and 141 paper to be met when the new edition was ready.

RECENT APPOINTMENTS

BRIGADIER F. K. ESCRITT to Headquarters, Eastern Command, as Deputy Director of Medical Services, vice Major-General K. A. M. Tomory. This appointment carries the rank of Major-General.

Colonel F. M. Richardson from abroad to the Royal Army Medical College to be Inspector of Training, Army Medical Service vice Brigadier F. K. Escritt. This appointment carries the rank of Brigadier.

Brigadier G. E. MacAlevey from abroad to Headquarters, Western Command, as Deputy Director of Medical Services. This appointment carries the rank of Major-General.

T/Brigadier R. Murphy has returned from abroad.

THE CORPS IN KOREA**FOOD IN THE FIELD**

Pastry in 26 Field Ambulance in Korea



**Reading the News of Cease-Fire Talks in
26 Field Ambulance Korea**

NOTES FROM A.M.D.

BY OUR SPECIAL CORRESPONDENT

AGAIN 60 (Indian) Field Ambulance is in the news. We should like to offer our sincere congratulations to its Commanding Officer, Lieut.-Colonel A. G. Rangaraj, on the award of the Maha Vir Chakra. We are informed that this is equivalent to the D.S.O. We are sorry that our overseas reporter has supplied us with no further information about the U.S. awards to Lieut.-Colonel MacLennan and Major Montgomery which we mentioned last month. We have, however, heard of a number of well-merited honours received by the 3rd Battalion the Royal Australian Regiment. Serjeant Murray has been awarded the George Medal for his performance as stretcher-bearer Serjeant in operations last October. The hygiene serjeant won a Military Medal and the R.A.P. serjeant was Mentioned in Despatches.

A few months ago we had occasion to refer to a collection of misspelt medical terms. The other day we saw some recent additions to this collection, which may amuse our readers. Penal Disease was not, we were assured, connected with either the misfortunes of a Don Juan or jail fever. It was, we gathered, a misinterpretation of a medical note regarding disease of the kidney. We asked whether leg ulcers were a disease or a dressing. But we completely failed to think of any facetious remarks to make about pilnidol sinus, eratheama noducem or septaciamia encardoritis. The fact is, that having looked at the last three for a while, we cannot for the life of us remember the commonly accepted spelling. We particularly like encardoritis, in any case, and so if in the future we refer to this condition in our correspondence to our colleagues, our identity will be instantly exposed.

While pursuing our dilatory way round the branches of A.M.D. in search of gossip, we were regaled with the following delightful little story, the truth of which we were able to check. Some years ago the commander of an overseas station addressed a signal to the War Office requesting authority for the employment of a civilian gynæcologist. The request was received by A.G.3 who, in a flash of brilliant inspiration, passed it to A.G.1 (Family Passages)! The latter branch gallantly attempted to deal with the problem, but eventually decided to seek the advice of other branches. It was finally rescued by A.M.D.1, who explained that it was so important in gynæcological matters to use the correct channels.

We have been told that last month we failed to keep our promise to the annotators of Army Lists, and so we make amends now. Brigadier A. J. Beveridge is to be Major-General, November 8, 1951; Lieut.-Colonel A. N. B. Odber to be Colonel, October 16, 1951; Lieut.-Colonel S. W. K. Arundell to be Colonel, November 8, 1951; Major K. P. Brown to be Lieut.-Colonel, October 16, 1951; Major J. C. Watts to be Lieut.-Colonel, November 8, 1951; Captain M. G. Jackson-Smyth to be Major, September 4, 1951; and Captain P. L. G. Cole to be Major, November 6, 1951. As a full list of extracts from the *London Gazette* appears on another page, we will not repeat the information set out there.

Our world tour is nearly over. In this last month we must try to discover

all the appointments we have not so far mentioned, and in advance we apologize to anyone who is not named and beg his indulgence. The last command to be visited is West Africa, where Brigadier J. C. Courtts is D.D.M.S., with Lieut.-Colonel D. D. Maitland as his A.D.A.H. At the Military Hospital at Accra is Lieut.-Colonel W. B. F. Brennan in command, and at Kaduna and Lagos the military hospitals are commanded respectively by Lieut.-Colonel D. Matheson and Lieut.-Colonel A. L. Pennefather.

Colonel T. M. R. Ahern is A.D.M.S. the British Military Mission to Greece. Lieut.-Colonel W. H. Hargreaves is relieving Lieut.-Colonel W. R. M. Drew as Professor of Medicine at Baghdad University. Lastly we turn towards the West, where Lieut.-Colonel C. A. de Candole is in Canada as a pathologist and Lieut.-Colonel J. R. Kellett is in Washington as an ophthalmologist under the exchange scheme. Our Medical Liaison Officer at Washington is Lieut.-Colonel G. M. Denning.

On September 22, 1951, Colonel T. H. Twigg, M.B. (late R.A.M.C.) retired. He was appointed to a commission in the R.A.M.C. in the middle of 1916 and served in the United Kingdom and Salonika and with the B.E.F. until early in 1919, when he was posted to Netley. At the end of 1920 he went to the Middle East, where he spent over three years at various hospitals. After a period in England he was seconded to the Colonial Office in November 1926 for two years with the Sanitary Services, Nigeria on the Plague Commission. He then attended the Senior Officers' Course at Millbank and was appointed a specialist pathologist. He was seconded to the Colonial Government in 1929 for duty with the British Somaliland—Italian Somaliland Boundary Commission. He was restored to Establishment at the end of 1930, and after a year in command of a military hospital was again seconded to the Colonial Government until May 1934. After a short period at the Command Laboratory at Tidworth he was appointed medical officer and instructor at the Small Arms School. On completion of the three-year tenure at the School he embarked for India, where he became D.A.D.P. at H.Q. Madras District. In April 1942 he was appointed Adviser in Physiology at G.H.Q. India. He held this post until he returned to the U.K. at the end of February 1945. For a short time he was S.M.O. 157 Infantry Brigade until he was appointed A.D.M.S. Gold Coast in October 1945 with the acting rank of Colonel. In the middle of 1946 he went to B.A.O.R. where he was successively A.D.M.S. 49 Division and 7 Armoured Division and O.C. 29 (Hannover) British Military Hospital. He was promoted Colonel on March 3, 1947. At the end of January of the following year he embarked for the Middle East where he became A.D.M.S. 1 Infantry Division. In September 1948 he was appointed D.D.M.S. Malta with the temporary rank of Brigadier. On his return to U.K. in August 1949 he went to Aldershot District as A.D.M.S. and held this appointment until his retirement.

Colonel W. C. MacKinnon, M.B. (late R.A.M.C.) retired on September 29, 1951. He was commissioned in the R.A.M.C. in April 1917 and spent the first three years of his service in Mesopotamia. After a few months at the Military Hospital, Edinburgh, he spent two years in India and seventeen months in Germany. In October 1924 he joined the Senior Officers' Course at the R.A.M.

College. For three years from the beginning of 1926 he was in Singapore and for the next three years he carried out the duties of adjutant, R.A.M.C. to 50 (N) Division, T.A.

At the end of 1932 he commenced a tour in India as Specialist in Gynæcology, returning home in April 1938 when he went to the Louise Margaret Hospital until the outbreak of war. He then became D.A.D.M.S. at H.Q.L. of C. Sub-Area, which he joined in Aldershot and accompanied to France. Early in 1940 he was appointed to command 201 Cavalry Field Ambulance and after a year he became A.D.M.S. Combined Training Centre, Inveraray, with the acting rank of Colonel. After some other appointments he took over command of 33 General Hospital in April 1942 and a month later took it to the Middle East, where it was stationed in PAIFORCE, Malta, and B.N.A.F. After nearly two years with this hospital he was posted to command 99 General Hospital in B.N.A.F. and returned to U.K. in April 1945. Two months later he was on the way to India. There he successively commanded 126, 69 and (in Singapore) 49 Indian General Hospitals and 47 British General Hospital. At the beginning of 1947 he returned to the United Kingdom to command the Military Hospital, Cowglen, near Glasgow, where he remained for two years. At the end of April 1949 he was appointed A.D.M.S. North West District and he held this appointment until his retirement.

Major-General K. A. M. Tomory, *C.B., O.B.E., M.B.* (late R.A.M.C.), *K.H.P.*, retired on November 7, 1951. At the end of 1914 he was appointed to a commission in the R.A.M.C., and during the war years he served in India, the Mesopotamia Expeditionary Force, the North Persian Force and the British Salonika Force. He went to Hong Kong in November 1919 and thence to the Rhine Army in May 1923 where he joined 36 C.C.S. At the end of October 1924 he returned to the United Kingdom to join the Senior Officers' Course. On completion of this course he spent the next five years in India. In September 1931 he attended a specialist course and qualified as a specialist in anæsthetics. He practised this speciality at the Royal Herbert Hospital, Woolwich, during the years 1932 and 1933, and at the end of the latter year he embarked for India, where he was to serve until the beginning of 1939. He returned to U.K. and practised anæsthetics at the Royal Victoria Hospital, Netley. On the first day of the Second World War he was appointed to command 3 C.C.S. and went to the Continent with it a month later. He was in the evacuation of Dunkirk in June 1940. Later that year he was posted as O.C. 9 Light Field Ambulance, and at the beginning of 1941 he went to Sierra Leone as A.D.M.S. with the acting rank of Colonel. A year later he returned to command 69 General Hospital, but was shortly afterwards appointed A.D.M.S. 43 Division and embarked with this formation for B.L.A. in the invasion of North West Europe. In October 1944 he became D.D.M.S. 12 Corps and an acting brigadier and in mid-1945 D.D.M.S. 10 Corps in the U.K. Towards the end of 1945 he flew out to Paiforce to take up the appointment of D.D.M.S. Persia and Iraq Command. In May 1946 he became D.D.M.S. British Troops in Egypt, and on relinquishing this appointment and returning home he assumed the appointment of D.D.M.S. Scottish Command. On March 31, 1949, he was appointed

to H.Q. Eastern Command as D.D.M.S. and held this position until his retirement.

General Tomory was Mentioned in Dispatches for services in the Field in December 1940.

We have had confirmation that the last of the three medical officers who were reported missing earlier this year is, in fact, a prisoner-of-war. The next-of-kin of Captain D. R. Patchett, R.A.M.C., have received a letter from him dated August 4.

At the time of his capture Captain Patchett was R.M.O. to the 8th Hussars. It falls to our sad lot to record the death of another R.M.O. of this Regiment. Captain G. H. F. Beith was killed in action in Korea on October 3, 1951. Shortly after joining the R.A.M.C. in 1947 he was appointed to a short service commission and in August of 1949 he embarked for Hong Kong with 18 Field Ambulance. He retired from the Army shortly after his return to the U.K. in May 1950. In September 1950 he was recalled from R.A.R.O. and joined 29 General Hospital, with which he embarked for Japan in November 1950. After a period of service with 29 General Hospital he was posted to the 8th Hussars and served with them until his untimely death.

THE JOURNAL

As most of our readers know, it has been finally decided by the Journal Committee that the Journal shall cease production. This decision has been taken owing to continued publication losses and for the past few years the Journal has been living on money saved in easier days.

Consultations have taken place between the three Services and, as a result, it is hoped that a new professional Journal will arise like a phoenix from the ashes which will be of interest to all medical and dental members of all three Services, both serving and retired. This new Journal will be known as *The Medical and Dental Journal of the British Armed Forces*.

The majority of our readers, as well as those who do not at present subscribe to the Journal, have been sent a brochure of the proposed new quarterly Journal. This brochure included a voting form, the completion and return of which will greatly help us to decide how popular the new venture is likely to be.

It is hoped that the first quarterly issue of the new Journal will appear in the summer of 1952. In the meantime, in order to fill the gap, it has been agreed that the JOURNAL OF THE R.A.M.C. will continue to appear monthly for the first six months of the year, though from a different Printing House.

We are sure that the supporters of the Journal, which has been a Corps institution for almost half a century, will give their whole-hearted support to the new venture. The first year of a new professional journal is always an anxious time, especially in these days of tightened purse-strings, and we hope that our present subscribers will not only carry over their subscriptions but will also support us by contributions of articles for publication and by obtaining new subscribers.

Fuller details of the new Journal will be published at a later date when Managing and Editorial Committees have been formed by the three Services.

PAKISTAN AND BURMA

THE association with the R.A.M. College of officers of the Pakistan Army Medical Corps and the Burma Army Medical Corps has lately been happily marked by the presentation to the Headquarter Officers' Mess of the two pieces of plate illustrated here.

The Pakistan officers have given an enlarged replica of their badge mounted on an ebony stand. The staff and serpent, enclosed in a wreath of palm and



surmounted by the star and crescent, stand on a scroll inscribed "Pakistan Army Medical Corps." The reverse bears a plate, engraved: "Presented by the Officers of the Pakistan Army Medical Corps to the Royal Army Medical College, Millbank, 1951."

The shield was given personally by the ever popular Major-General S. M. A. Faruki, D.M.S., Pakistan Army, in August 1951, to the Commandant of the College (Major-General F. R. H. Mollan, C.B., O.B.E., M.C., K.H.S.), who has placed it in the Mess so that it may be more generally seen.

The Burma gift was handed to the Mess President by Major Maung Lwin, B.A.M.C., on behalf of Major-General Maung Maung Gyi, D.M.S., Burma Army, at a dinner night this year. It consists of a bronze statuette, of delicate

workmanship, representing a mounted officer of that Burmese army which, under General Maha Bandoola, opposed us in the first Burma War of 1824-6.



On the plinth is a tablet which reads: "Presented to the Royal Army Medical Corps Headquarters Officers' Mess by the Officers of the Burma Army Medical Corps. December 1950."

J. B. N.

Obituary

Major ARTHUR HERBERT HAYES

On May 19, 1951, Major Arthur Herbert Hayes, F.R.C.P., R.A.M.C., Retired.

Born April 2, 1875, he took the M.R.C.S. and L.R.C.P. in 1899. He took the M.R.C.P. in 1903 and the F.R.C.P. in 1922. He took the D.P.H., R.C.P.S. in 1910.

Having served as a Civil Surgeon 279 days—July 7, 1900 to April 11, 1901, he was appointed Lieutenant R.A.M.C. September 1, 1902. Promoted Captain March 1, 1906, and Major June 1, 1914, he retired August 2, 1922, and later was

appointed Assistant Medical Officer, Surrey County Council, which appointment he held till the 1940s.

In South Africa 1900–01 he was Assistant Physician Imperial Yeomanry Hospital, Pretoria, and took part in the operations in Transvaal, July 1900 to April 1901, being awarded the Queen's Medal with Clasps, Cape Colony, Orange Free State, Transvaal and S. Africa 1901.

In 1914–18 he was serving in India.

J. G. F.

Lieut.-Colonel FRANCIS PIUS LAUDER

IN Plymouth on September 22, 1951, of shock following burns of the face and body, the result of smoking in bed, Lieut.-Colonel Francis Pius Lauder, R.A.M.C., Retired. His pyjamas were burnt off and the bed had caught fire.

Born June 6, 1875, he took the L.R.C.P., L.R.C.S. Edinburgh, and L.R.F.P.S. Glasgow, in 1899. He entered the Service as Lieutenant R.A.M.C. May 30, 1900. Promoted Captain May 30, 1903, Major February 29, 1912, and Lieut.-Colonel December 26, 1917, he retired February 24, 1923.

He was appointed to the Retired Pay appointment at Fort Tregarth February 27, 1923, and ceased to be employed November 9, 1947.

He served in France September 10, 1914, till April 2, 1915, and July 28, 1915, till April 28, 1916, being awarded the 1914 Star, British War and Victory Medals.

He again saw service in Waziristan 1919–1921, receiving the Medal with Clasp.

J. G. F.

Lieut.-Colonel PHILLIP CLAUDE TRESILIAN DAVY

SUDDENLY in Melbourne on September 25, 1951, Lieut.-Colonel Phillip Claude Tresilian Davy, C.M.G., M.B., R.A.M.C., Retired.

Son of the late James Tresilian Davy, Ottery St. Mary, Devon, he was born August 3, 1877. Educated at Blundell's School, Tiverton, and University College Hospital, London, he took the M.B. London in 1904 and entered the Services as Lieutenant R.A.M.C. July 30, 1904. Promoted Captain January 30, 1908, Major July 1, 1915, and Lieut.-Colonel October 19, 1927, he retired August 3, 1932. He was seconded for service under the Egyptian Government from May 1, 1919, to May 31, 1923. He rejoined September 23, 1939, and worked on Pensions Appeal Board, being released January 14, 1942.

He contributed articles to the JOURNAL OF THE R.A.M.C. and the *British Medical Journal*.

He served in France from August 18, 1914, till taken prisoner August 27, 1914, returning home June 28, 1915. He served in Egypt and with the Egyptian Expeditionary Force December 20, 1915, till the end of the war. Mentioned in despatches, he was created C.M.G., awarded the Gold Medal of the Order of St. John, the 1914 Star and Clasp, British War and Victory Medals.

J. G. F.

Lieut.-Colonel IVOR ROBERT HUDLESTON

On September 22, 1951, Lieut.-Colonel Ivor Robert Hudleston, *D.S.O.*, *R.A.M.C.*, Retired. Son of the late R. J. Hudleston, Portishead, Somerset, he was born June 4, 1886, in Keynsham. Educated at Blundell's School, Tiverton, and St. Bartholomew's Hospital, he took the *M.R.C.S.England*, and the *L.R.C.P.London*, in 1911, and was commissioned Lieutenant *R.A.M.C.* July 28, the same year.

Promoted Captain January 28, 1915, he retired with the rank of Lieut.-Colonel receiving a gratuity January 16, 1920. He rejoined August 24, 1939, and was released April 16, 1941. He served in France from August 3, 1917, till March 5, 1919.

Twice mentioned in despatches he was awarded the *D.S.O.*, Belgian War Cross and the British War and Victory Medals.

J. G. F.

C. HOPE CARLTON, M.C., M.Ch., F.R.C.S.

MR. C. HOPE CARLTON, surgeon to the National Temperance and other hospitals, died suddenly in London on October 3, aged 61.

Charles Hope Carlton, whose parents lived in Grantham, went up to St. John's College, Oxford, from Doncaster Grammar School as an exhibitioner. He was University Scholar at St. Mary's Hospital, where he was house-surgeon to the surgical unit and demonstrator of anatomy after graduating *B.M.*, *B.Ch.* in 1914. In the first world war he served in West Africa and in France with the 6th Bn. City of London Rifles, 6th London Field Ambulance and the 2nd Life Guards and won the *M.C.* After this war he travelled extensively being for a time a special student at the Mayo Clinic and resident surgeon at the Hospital for Sick Children, Toronto. In 1923 he graduated *M.Ch.* and took the *F.R.C.S.* and later secured appointments on the staff of the National Temperance Hospital, where he was a curator of the museum, the South-Eastern Hospital for Children, the Seamen's Hospital (Royal Albert Dock), the Sydenham Children's Hospital, and Bexley Cottage Hospital.

Hope Carlton's professional interests covered more than the purely clinical side of his work. He was Warden of Connaught Hall and a member of the military education committee of the University of London. He was promoted Brevet Colonel in 1937 and commanded the medical unit of the University of London *O.T.C.*, and early in 1939 he was appointed *A.D.M.S.*, of the First *A.A.* Division. Later in the Second World War he was commanding officer of hospitals in North Africa and Europe. In 1950 and 1951 he was a representative of his Division at the Annual Representative Meeting of the *B.M.A.*

During the Second World War he was at Suda Bay, Crete, when the Germans attacked the island, but was evacuated before it was overrun. He was very interested in surgery, especially orthopædics. He had little idea of time, but his occasional unpunctuality, for which he was always full of regrets, was counteracted by his charm of manner and transparent

honesty. He was assiduous in his attendance at scientific meetings, and always enjoyed the dinner discussions of the Chelsea Clinical Society. He took infinite pains with patients, to whom he showed great sympathy and kindness. When he was an undergraduate at Oxford he read law at St. John's College, but medicine had a greater attraction for him, and after taking a degree in Arts he entered St. Mary's Hospital.

His knowledge of law subsequently stood him in good stead: he was welcomed as a member of committees and was recently elected to the council of the Regional Hospitals Consultants and Specialists Association as a representative of the North-West Metropolitan Region. His contribution to these discussions was always helpful. His personal interests included a sound knowledge of prints: at one time he bred bull-terriers, one of which accompanied him in his car.

When at Oxford and later at St. Mary's he was a popular member of the O.T.C. especially in Camp where his varied interests and interest in everything were a constant entertainment to his many friends.

T. O. T.

Reviews

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By Zachary Cope, B.A., M.D., M.S.Lond., F.R.C.S. Tenth edition. 1951. Pp. xv + 270. Oxford University Press. Price 15s.

The regularity of the appearance of new editions of this popular handbook of some 260 pages is sufficient proof of its popularity.

It is a pleasant book to re-read and one that it is valuable to have on the book-shelf for reference and revision, whenever one meets a case of "acute abdomen" which is a little out of the ordinary.

The author does not lay much stress on Coronary Thrombosis as a difficulty in diagnosis—in fact this term is not used in the text or the index. Yet this may give a real difficulty in diagnosis even requiring the help of an electro-cardiogram for final decision.

This is a book to be recommended to all junior surgeons and physicians.

A. G. H.

ETHYLENE AND PROPYLENE GLYCOLS. By John Rae, M.P.S. The Pharmaceutical Press. Pp. 30. Price 2s. 6d.

A small and useful series of articles collected from the *Pharmaceutical Journal* and the *Quarterly Journal of Pharmacy and Pharmacology*, and reprinted in a presentable and handy pamphlet. The pamphlet is clear, concise and with good tables.

T. O. T.

Extracts from the "London Gazette"

18.9.51

R.A.M.C.

Capt. William Andrews (231111) from Short Serv Commn. (Admin. and Tech.) to be Lt. (Qr.-Mr.) 17th Sept. 1951

Lt. (Qr.-Mr.) W. Andrews (231111) to be Capt. (Qr.-Mr.) 17th Sept. 1951.

Short Serv. Commns.

War Subs. Capt. (Qr.-Mr.) Frank Oliver Moore (205078) from Emerg. Commn. to be Lt. (Qr.-Mr.) 20th Aug. 1951, with seniority 9th Feb. 1945.

Lt. (Qr.-Mr.) F. O. Moore (205078) to be Capt. (Qr.-Mr.) 20th Aug. 1951, with seniority 9th Feb. 1951.

James Alphonsus Leonard, M.B. (418644), to be Lt., 20th Aug. 1951.

Short Serv. Commn.

War Subs. Lt. Thomas Hughes (318704) from Emerg. Commn., to be Lt., 20th Aug. 1951, Admin. and Tech., with seniority 30th Oct. 1949.

21.9.51

R.A.M.C.

Capt. Geoffrey Harold Carriett (388706) from Short Serv. Commn., to be Capt., 21st Sept. 1951, retaining his present seniority.

Capt. Vincent John Elliott Davies (401512) from Nat. Serv. List, to be Capt., 24th Aug. 1951, with seniority 22nd June 1946.

Short Serv. Commn. Type "B"

Capt. M. M. Munro, M.B. (287912) to be Maj. 21st Aug. 1951.

Short Serv. (Specialist) Commn.

Maj. Mary Mackenzie Munro, M.B. (287912), from Short Serv. Commn. (Type "B") to be Capt., 24th Aug. 1951.

Capt. M. M. Munro, M.B. (287912) to be Maj., 24th Aug. 1951, with seniority 21st Aug. 1951.

1.10.51

*R.A.M.C.**Admin. and Tech.**Short Serv. Commn.*

Capt. (Qr.-Mr.) (Hon. Maj.) James Moreau (241276) from Reg. Army Res. of Offrs. to be Capt., 1st Sept. 1951, with seniority 8th July 1950, relinquishing the appt. of Qr.-Mr.

2.10.51

Maj.-Gen. (temp.) Arthur Joseph Beveridge, *O.B.E.*, *M.C.*, M.B. (8619), late R.A.M.C., is appointed Honorary Physician to The King, 1st May 1951, vice Brig. Harry Taylor Findlay, M.B. (1845), ret'd.

Brig. (temp.) Robert James Rosie, M.B. (27887), late R.A.M.C., is appointed Honorary Physician to The King, 25th July 1951, vice Maj.-Gen. Jeremiah John Wagner, *C.B.*, *M.C.*, M.B. (8718) ret'd.

REGULAR ARMY

Col. W. C. Mackinnon, M.B. (26360), late R.A.M.C., retires on ret. pay 29th Sept. 1951.

*R.A.M.C.**Short Serv. Commn.*

Capt. (Qr.-Mr.) Charles Edward Malyon (154189) from Emerg. Commn., to be Capt. (Qr.-Mr.) 3rd Sept. 1951, with seniority 14th Nov. 1947.

2.10.51

R.A.D.C.

Admin. and Tech.

Short Serv. Commn.

7536246 W.O. Cl. I, Benjamin Johnson (419167) to be 2nd Lt. 11th Sept. 1951.

2nd Lt. B. Johnson (419167) to be Lt. 11th Sept. 1951.

5.10.51

R.A.M.C.

Capt. M. G. Jackson-Smyth, M.B. (291913) to be Maj., 4th Sept. 1951.

Short Serv. Commns.

The undermentioned Lts. to be Capts., 10th Sept. 1951:

C. B. P. Parry (408679).

R. Gathercole (412968).

H. D. S. Morgan (412975).

H. N. R. Wilson (412984).

Admin. and Tech.

Short Serv. Commn.

Lt. G. C. Smart, M.B.E. (375146), to be Capt., 30th July 1951.

9.10.51

R.A.M.C.

Lt. L. Tippet (413208), to be Capt., 1st Oct. 1951.

Capt. (War Subs. Maj.) W. N. S. Donaldson, T.D., M.B. (64906), to be Maj., 28th May 1948, with seniority 24th Aug. 1947, next above Maj. J. B. Neal. (Substituted for notifn. in *Gazette* (Supplement) dated 4th Feb. 1949.)

Short Serv. Commn.

Capt. Michael Francis Cannell, M.B. (405606), from Emerg. Commn. to be Capt., 15th Aug. 1951, retaining present seniority.

Capt. Anthony Joseph Lewis, M.B. (408528), from Nat. Serv. List to be Capt. 6th Sept. 1951, retaining present seniority.

Capt. Roger Alan Arthur (367484), from T.A. to be Lt., 10th Sept. 1951.

Lt. J. Lapper, M.B. (413222), to be Capt., 1st Oct. 1951.

Lt. G. K. S. Roberts, M.B. (413228), to be Capt., 1st Oct. 1951.

The undermentioned to be Lts., 10th Sept. 1951:

Ralph George Hirons (418996).

Robert Noel Evans, M.B. (419035).

Mildred Forsyth Gordon, M.B. (419110).

Colin Henry Corby, M.B. (419146).

Short Serv. Commn.

Admin. and Tech.

Lt. Eric Thompson Bran (309431), from Emerg. Commn., to be Lt., 3rd Sept. 1951, with seniority 1st July 1951.

Short Serv. (Specialist) Commn.

Louis John Francis Warnants (418714), to be Lt., 10th Sept. 1951.

War Subs. Capt. (now Capt.) John Kenneth Sugden (71654) from R.A.M.C. (T.A.) is granted a Short Serv. Spec. Commn. in the rank of Capt., 22nd Nov. 1946, with seniority 24th April 1945. (Substituted for notifn. in *Gazette* (Supplement) dated 13th Dec. 1946.)

EXTRACTS FROM THE
SUPPLEMENT TO THE "LONDON GAZETTE," 19 OCTOBER, 1951

ROYAL ARMY MEDICAL CORPS

Capt. E. P. White (257770).
7535730 Sjt. C. G. Goves.
21017101 A/Cpl. S. K. Long.

QUEEN ALEXANDRA'S ROYAL ARMY NURSING CORPS

Capt. M. P. A. Albrecht, A.R.R.C. (206009).
Capt. H. C. Thayer (215662).
Lt. M. P. A. Revell (371913).

JOURNALS RECEIVED

THE following journals have been received and are available in the R.A.M. College Library:

Practitioner, Military Surgeon, Medical Press, Bulletin of Hygiene, Medical Journal of Australia, Lancet, B.M.J., South African Medical Journal, Indian Journal of Medical Research, Journal of the Royal Sanitary Institute, Glasgow Medical Journal, Bulletin of the Johns Hopkins Hospital, Indian Journal of Malariology, Post Graduate Medical Journal, Journal of the Royal Institute of Public Health and Hygiene, St. Bart's Hospital Journal, British Medical Bulletin, Chronicle of World Health Organisation, Proc. of Royal Society of Medicine, Journal of the R.A.S.C., Tropical Disease Bulletin, Edinburgh Medical Journal, Journal of R.A.V.C., Clinical Proceedings, Indian Medical Gazette, Journal of the Royal Egyptian Medical Association, Quarterly Journal of Medicine, Military Review, Yale Journal of Biology and Medicine, East African Medical Journal, Clinical Journal, U.S.A. Forces Medical Journal, Canadian Journal of Public Health, Journal of Royal Naval Medical Services, London Hospital Gazette, xii Congreso Internacional de Medicina y Farmacia Militares, The Leech, Annales Belges de Medicine Militaire, Royal Melbourne Hospital Clinical Reports, Revue de Medecale, Courrier, North Wing, Boletin de la Oficina Sanitaria Panamericana, Giornale di Medicina Militare, Anales de Medicina y Cirugia, L'Algerie Medicale, The British Journal of Medical Hypnotism, Revista de la Asociacion Medica Argentina, Revista Militar, Anales de Medicina y Cirugia, De Militaire Spectator, Journal of Oslo City Hospitals, Vierteljahrsschrift fur Schweizerische Sanitatsoffiziere, Tuberculosis Institute "Sismanoglion" (Athens), The Islamic Review, The London Hospital Gazette, St. George's Hospital Gazette, Canadian Army Journal, The Ulster Medical Journal, Health Bulletin, Bulletin International des Services de Sante, Birmingham Medical Review, Distribution, Conquest, Medicine To-day and To-morrow, Bulletin Algerien de Carcinologie, The Lancashire Lad, Boletim do Centro de Estudos Hospital dos Servidores do Estado, Revista de Medicina Militar, Revista Medica da Aeronautica, Kings College Hospital Gazette, South African Journal of Clinical Science.

EDITORIAL NOTICES

The Editor will be glad to receive original communications upon professional subjects, travel, personal experiences, etc.

Correspondence on matters of interest to the Corps, and articles of a non-scientific character, may be accepted for publication under a *nom de plume*.

All Communications or Articles accepted and published in the "Journal of the Royal Army Medical Corps" will (unless the author notifies at the time of submission that he reserves the copyright of the article to himself) become the property of the Library and Journal Committee who will exercise full copyright powers concerning such Articles.

A free issue of twelve reprints will be made to contributors of Original Communications, and of twelve excerpts in the case of Lectures, Travels, Clinical and Other Notes. Such free reprints or excerpts will, however, owing to the shortage of paper, only be sent to those specifying their wish to have them, and a request for them should accompany the article when submitted for publication, the request being made in the form of a note at the foot of the manuscript.

Reprints or excerpts, additional to the above, can be furnished on payment if specially ordered at the time of submission of the article for publication.

Communications in regard to editorial business should be addressed—"The Editor, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.2, War Office, London, S.W.1."

MANAGER'S NOTICES

The Annual Subscription for the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS is £1 10s., payable in advance. Single copies, 3s. 6d. per copy.

Cheques, etc., should be made payable to the "Journal R.A.M.C.," and crossed "Holt & Co."

Communications in regard to subscriptions, change of address, etc., should be addressed "The Manager, JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, A.M.D.1, War Office, London, S.W.1."

UNIVERSITY OF CALIFORNIA LIBRARY
BERKELEY

Return to desk from which borrowed.
This book is DUE on the last date stamped below.

Biology Library

OCT 3 0 2005

REC'D BIOS
SEP 12 '05 10 00 PM

LD 21-100m-7,'52 (A2528s16)476

